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1

SEQUENCE LISTING

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ROOKEY, KRISTIN L.  
HOET, RENE  
HOOGENBOOM, HENDRICUS R. J. M.

<120> NOVEL METHODS OF CONSTRUCTING LIBRARIES COMPRISING  
DISPLAYED AND/OR EXPRESSED MEMBERS OF A DIVERSE FAMILY  
OF PEPTIDES, POLYPEPTIDES OR PROTEINS AND THE NOVEL  
LIBRARIES

<130> DYAX/002 CIP2

<140> 10/045,674

<141> 2001-10-25

<150> 06/198,069

<151> 2000-04-17

<150> 09/837,306

<151> 2001-04-17

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<170> PatentIn Ver. 2.1

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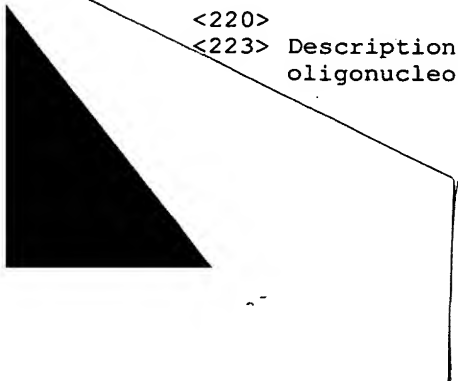
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 aaaaccgagg acacagcctt gtattactgt accacaga 98

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<400> 86  
 caynnnnrtg 10

<210> 87  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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## oligonucleotide

<220>  
 <221> modified\_base  
 <222> (6)..(11)  
 <223> A, T, C, G, other or unknown

<400> 87  
 gagtcnnnnn n

11

<210> 88  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<220>  
 <221> modified\_base  
 <222> (1)..(6)  
 <223> A, T, C, G, other or unknown

<400> 88  
 nnnnnngaga c

11

<210> 89  
 <211> 10  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<220>  
 <221> modified\_base  
 <222> (4)..(7)  
 <223> A, T, C, G, other or unknown

<400> 89  
 gaannnttc

10

<210> 90  
 <211> 90  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic 3-23  
 FR3 nucleotide sequence

<220>  
<221> CDS  
<222> (1)..(90)

<220>  
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<222> (3)  
<223> A, T, C or G

<220>  
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<222> (9)  
<223> A, T, C or G

<220>  
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<222> (12)  
<223> A, T, C or G

<220>  
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<222> (21)  
<223> A, T, C or G

<220>  
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<222> (30)  
<223> A, T, C or G

<220>  
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<222> (36)  
<223> A, T, C or G

<220>  
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<222> (51)  
<223> A, T, C or G

<220>  
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<223> A, T, C or G

<220>  
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<222> (60)  
<223> A, T, C or G

<220>  
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<222> (69)  
<223> A, T, C or G

<220>  
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<222> (72)  
<223> A, T, C or G



<220>  
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 <222> (75)  
 <223> A, T, C or G

<220>  
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 <222> (78)  
 <223> A, T, C or G

<220>  
 <221> modified\_base  
 <222> (87)  
 <223> A, T, C or G

<400> 90  
 acn ath wsn mgn gay aay wsn aar aay acn ytn tay ttn car atg aay 48  
 Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn  
           1                  5                  10                  15  
 wsn ttr mgn gcn gar gay acn gcn gtn tay tay tgy gcn aar 90  
 Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys  
                   20                  25                  30

<210> 91  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic 3-23  
           FR3 protein sequence

<400> 91  
 Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn  
           1                  5                  10                  15  
 Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys  
                   20                  25                  30

<210> 92  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
           probe

<400> 92  
 agttctccct gcagctgaac tc

<210> 93  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 93  
cactgtatct gcaaataaac ag

22

<210> 94  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 94  
ccctgtatct gcaaataaac ag

22

<210> 95  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 95  
ccgcctacct gcagtggagc ag

22

<210> 96  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 96  
cgctgtatct gcaaataaac ag

22

<210> 97  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
probe

<400> 97

cggcatatct gcagatctgc ag

22

<210> 98

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
probe

<400> 98

cggcgatatct gcaaataaac ag

22

<210> 99

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
probe

<400> 99

ctgcctacct gcagtggagc ag

22

<210> 100

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
probe

<400> 100

tcgcctatct gcaaataaac ag

22

<210> 101

<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 101

cgcttcacta agtctagaga caactctaag aatactctct acttgcagat gaacagctta 60  
agg 63

<210> 102  
 <211> 45  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 102  
 caagtagaga gtattcttag agttgtctct agacttagtg aagcg 45

<210> 103  
 <211> 54  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 103  
 cgcttcacta agtctagaga caactctaag aatactctct acttgagct gaac 54

<210> 104  
 <211> 54  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 104  
 cgcttcacta agtctagaga caactctaag aatactctct acttgcaaact gaac 54

<210> 105  
 <211> 54  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 105  
 cgcttcacta agtctagaga caactctaag aatactctct acttgagtg gagg 54

<210> 106  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 106

cgcttcacta agtctagaga c

21

<210> 107

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
probe

<400> 107

acatggagct gagcagcctg ag

22

<210> 108

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
probe

<400> 108

acatggagct gagcaggctg ag

22

<210> 109

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
probe

<400> 109

acatggagct gaggagcctg ag

22

<210> 110

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
probe

<400> 110

acctgcagtg gagcagcctg aa

22

<210> 111  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 111  
atctgcaaat gaacagcctg aa 22

<210> 112  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 112  
atctgcaaat gaacagcctg ag 22

<210> 113  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 113  
atctgcaaat gaacagtctg ag 22

<210> 114  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 114  
atctgcagat ctgcagccta aa 22

<210> 115  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 115  
atcttcaaat gaacagcctg ag

22

<210> 116  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 116  
atcttcaaat gggcagcctg ag

22

<210> 117  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 117  
ccctgaagct gagctctgtg ac

22

<210> 118  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 118  
ccctgcagct gaactctgtg ac

22

<210> 119  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 119  
 tccttacaat gaccaacatg ga 22

<210> 120  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic probe

<400> 120  
 tccttaccat gaccaacatg ga 22

<210> 121  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 121  
 acatggagct gagcagcctg ag 22

<210> 122  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 122  
 ccctgaagct gagctctgtg ac 22

<210> 123  
 <211> 54  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 123  
 cgcttcacta agtctagaga caactctaag aatactctct acttcagat gaac 54

<210> 124  
 <211> 60



<212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 124  
 cgcttcactc agtctagaga taacagtaaa aatactttgt acttgcagct gagcagcctg 60

<210> 125  
 <211> 60  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 125  
 cgcttcactc agtctagaga taacagtaaa aatactttgt acttgcagct gagctctgtg 60

<210> 126  
 <211> 52  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 126  
 tcagctgcaa gtacaaagta tttttactgt tatctctaga ctgagtgaag cg 52

<210> 127  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 127  
 cgcttcactc agtctagaga taac 24

<210> 128  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 128  
ccgtgtatta ctgtgcgaga ga 22

<210> 129  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 129  
ctgtgtatta ctgtgcgaga ga 22

<210> 130  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 130  
ccgtgtatta ctgtgcgaga gg 22

<210> 131  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 131  
ccgtgtatta ctgtgcaaca ga 22

<210> 132  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 132  
ccatgtatta ctgtgcaaga ta 22

<210> 133  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 133  
ccgtgtatta ctgtgcggca ga

22

<210> 134  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 134  
ccacatatta ctgtgcacac ag

22

<210> 135  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 135  
ccacatatta ctgtgcacgg at

22

<210> 136  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 136  
ccacgtatta ctgtgcacgg at

22

<210> 137  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 137

ccttggtatta ctgtgcaaaa ga

22

<210> 138

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 138

ctgtgtatta ctgtgcaaga ga

22

<210> 139

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 139

ccgtgtatta ctgtaccaca ga

22

<210> 140

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 140

ccttgatatca ctgtgcgaga ga

22

<210> 141

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 141

ccgtatatatta ctgtgcaaaa ga

22

<210> 142  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 142  
ctgtgtatta ctgtgcgaaa ga

22

<210> 143  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 143  
ccgtgtatta ctgtactaga ga

22

<210> 144  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 144  
ccgtgtatta ctgtgctaga ga

22

<210> 145  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 145  
ccgtgtatta ctgtactaga ca

22

<210> 146  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 146  
ctgtgtatta ctgtaagaaa ga

22

<210> 147  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 147  
ccgtgtatta ctgtgcgaga aa

22

<210> 148  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 148  
ccgtgtatta ctgtgccaga ga

22

<210> 149  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 149  
ctgtgtatta ctgtgcgaga ca

22

<210> 150  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 150  
ccatgtatta ctgtgcgaga ca 22

<210> 151  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 151  
ccatgtatta ctgtgcgaga 20

<210> 152  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 152  
ccgtgtatta ctgtgcgaga g 21

<210> 153  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 153  
ctgtgtatta ctgtgcgaga g 21

<210> 154  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 154  
ccgtgtatta ctgtgcgaga g 21

<210> 155  
<211> 21

<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 155  
ccgtatatta ctgtgcgaaa g

21

<210> 156  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 156  
ctgtgtatta ctgtgcgaaa g

21

<210> 157  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 157  
ctgtgtatta ctgtgcgaga c

21

<210> 158  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 158  
ccatgtatta ctgtgcgaga c

21

<210> 159  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide



<400> 159  
ccatgtatta ctgtgcgaga

20

<210> 160  
<211> 94  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 160  
ggtgtagtga tctagtgaca actctaagaa tactctctac ttgcagatga acagctttag 60  
ggctgaggac actgcagtct actattgtgc gaga 94

<210> 161  
<211> 94  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 161  
ggtgtagtga tctagtgaca actctaagaa tactctctac ttgcagatga acagctttag 60  
ggctgaggac actgcagtct actattgtgc gaaa 94

<210> 162  
<211> 85  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 162  
atagtagact gcagtgtcct cagcccttaa gctgttcac tgcaagtaga gagtattctt 60  
agattgtct ctagatcact acacc 85

<210> 163  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 163  
ggtgtagtga tctagagaca ac

22

<210> 164  
<211> 55  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 164  
ggtgtagtga aacagcttta gggctgagga cactgcagtc tactattgtg cgaga 55

<210> 165  
<211> 55  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 165  
ggtgtagtga aacagcttta gggctgagga cactgcagtc tactattgtg cgaaa 55

<210> 166  
<211> 46  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 166  
atagtagact gcagtgtcct cagcccttaa gctgtttcac tacacc 46

<210> 167  
<211> 46  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 167  
ggtgtagtga aacagcttaa gggctgagga cactgcagtc tactat 46

<210> 168  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 168  
gggtgtagtga aacagcttaa gggctg 26

<210> 169  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 169  
agttctccct gcagctgaac tc 22

<210> 170  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 170  
cactgtatct gcaaatgaac ag 22

<210> 171  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 171  
ccctgtatct gcaaatgaac ag 22

<210> 172  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 172  
ccgcctacct gcagtggagc ag 22

<210> 173  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 173  
cgctgtatct gcaaataaac ag 22

<210> 174  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 174  
cggcatatct gcagatctgc ag 22

<210> 175  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 175  
cggcgtatct gcaaataaac ag 22

<210> 176  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
probe

<400> 176  
ctgcctacct gcagtggagc ag 22

<210> 177  
<211> 22

<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic probe

<400> 177  
tcgcctatct gcaaataaac ag

22

<210> 178  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 178  
acatggagct gagcagcctg ag

22

<210> 179  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 179  
acatggagct gagcaggctg ag

22

<210> 180  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 180  
acatggagct gaggagcctg ag

22

<210> 181  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 181  
acctgcagtg gagcagcctg aa 22

<210> 182  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 182  
atctgcaaat gaacagcctg aa 22

<210> 183  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 183  
atctgcaaat gaacagcctg ag 22

<210> 184  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 184  
atctgcaaat gaacagtctg ag 22

<210> 185  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 185  
atctgcagat ctgcagccta aa 22

<210> 186  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 186  
atcttcaa at gaacagcctg ag

22

<210> 187  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 187  
atcttcaa at ggcagcctg ag

22

<210> 188  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 188  
ccctgaagct gagctctgtg ac

22

<210> 189  
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<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 189  
ccctgcagct gaactctgtg ac

22

<210> 190  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 190

tccttacaat gaccaacatg ga

22

<210> 191

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 191

tccttaccat gaccaacatg ga

22

<210> 192

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 192

ccgtgtatta ctgtgcgaga ga

22

<210> 193

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 193

ctgtgtatta ctgtgcgaga ga

22

<210> 194

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 194

ccgtgtatta ctgtgcgaga gg

22



<210> 195  
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<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 195  
ccgtgtatta ctgtgcaaca ga

22

<210> 196  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 196  
ccatgtatta ctgtgcaaga ta

22

<210> 197  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 197  
ccgtgtatta ctgtgcggca ga

22

<210> 198  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 198  
ccacatatta ctgtgcacac ag

22

<210> 199  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 199

ccacatatta ctgtgcacgg at

22

<210> 200

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 200

ccacgtatta ctgtgcacgg at

22

<210> 201

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 201

ccttgtatta ctgtgcaaaa ga

22

<210> 202

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 202

ctgtgtatta ctgtgcaaga ga

22

<210> 203

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 203  
ccgtgtatta ctgtaccaca ga

22

<210> 204  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 204  
ccttgatatca ctgtgcgaga ga

22

<210> 205  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 205  
ccgtatatatta ctgtgcgaaa ga

22

<210> 206  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 206  
ctgtgtatta ctgtgcgaaa ga

22

<210> 207  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 207  
ccgtgtatta ctgtactaga ga

22

<210> 208  
<211> 22

<212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 208  
 ccgtgtatta ctgtgctaga ga

22

<210> 209  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 209  
 ccgtgtatta ctgtactaga ca

22

<210> 210  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 210  
 ctgtgtatta ctgtaagaaa ga

22

<210> 211  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 211  
 ccgtgtatta ctgtgcgaga aa

22

<210> 212  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 212  
ccgtgtatta ctgtgccaga ga

22

<210> 213  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 213  
ctgtgtatta ctgtgcgaga ca

22

<210> 214  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 214  
ccatgtatta ctgtgcgaga ca

22

<210> 215  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 215  
ccatgtatta ctgtgcgaga aa

22

<210> 216  
<211> 90  
<212> DNA  
<213> Homo sapiens

<400> 216  
caggtgcagc tgggtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaaggtc 60  
tcctgcaagg cttctggata caccttcacc 90

<210> 217  
<211> 90  
<212> DNA  
<213> Homo sapiens

&lt;400&gt; 217

caggtccagc ttgtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaagggtt 60  
 tcctgcaagg cttctggata caccttcact 90

&lt;210&gt; 218

&lt;211&gt; 90

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 218

caggtgcagc tgggtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaagggtc 60  
 tcctgcaagg cttctggata caccttcacc 90

&lt;210&gt; 219

&lt;211&gt; 90

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 219

caggttcagc tgggtgcagtc tggagctgag gtgaagaagc ctggggcctc agtgaagggtc 60  
 tcctgcaagg cttctgggta cacctttacc 90

&lt;210&gt; 220

&lt;211&gt; 90

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 220

caggtccagc tgggtacagtc tggggctgag gtgaagaagc ctggggcctc agtgaagggtc 60  
 tcctgcaagg tttccggata caccctcact 90

&lt;210&gt; 221

&lt;211&gt; 90

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 221

cagatgcagc tgggtgcagtc tggggctgag gtgaagaaga ctgggtcctc agtgaagggtt 60  
 tcctgcaagg cttccggata caccttcacc 90

&lt;210&gt; 222

&lt;211&gt; 90

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 222

caggtgcagc tgggtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaagggtt 60  
 tcctgcaagg catctggata caccttcacc 90

&lt;210&gt; 223

&lt;211&gt; 90

<212> DNA  
 <213> Homo sapiens

<400> 223  
 caaatgcagc tgggtgcagtc tgggcctgag gtgaagaagc ctgggacctc agtgaaggtc 60  
 tcctgcaagg cttctggatt cacctttact 90

<210> 224  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 224  
 caggtgcagc tgggtgcagtc tggggctgag gtgaagaagc ctgggtcctc ggtgaaggtc 60  
 tcctgcaagg cttctggagg caccttcagc 90

<210> 225  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 225  
 caggtgcagc tgggtgcagtc tggggctgag gtgaagaagc ctgggtcctc ggtgaaggtc 60  
 tcctgcaagg cttctggagg caccttcagc 90

<210> 226  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 226  
 gaggtccagc tgggtacagtc tggggctgag gtgaagaagc ctggggctac agtgaaaatc 60  
 tcctgcaagg tttctggata caccttcacc 90

<210> 227  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 227  
 cagatcacct tgaaggagtc tggtcctacg ctggtgaaac ccacacagac cctcacgctg 60  
 acctgcacct tctctgggtt ctcaactcagc 90

<210> 228  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 228  
 caggtcacct tgaaggagtc tggtcctgtg ctggtgaaac ccacagagac cctcacgctg 60  
 acctgcaccg tctctgggtt ctcaactcagc 90

<210> 229  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 229  
 cagggtcacct tgaaggagtc tgggtcctgcg ctgggtgaaac ccacacagac cctcacactg 60  
 acctgcacct tctctgggtt ctcactcagc 90

<210> 230  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 230  
 gaggtgcagc tgggtggagtc tggggggaggc ttgggtccagc ctgggggggtc cctgagactc 60  
 tcctgtgcag cctctggatt caccttttagt 90

<210> 231  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 231  
 gaagtgcagc tgggtggagtc tggggggaggc ttgggtacagc ctgggcaggtc cctgagactc 60  
 tcctgtgcag cctctggatt cacctttgat 90

<210> 232  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 232  
 cagggtgcagc tgggtggagtc tggggggaggc ttgggtcaagc ctggagggtc cctgagactc 60  
 tcctgtgcag cctctggatt caccttcagt 90

<210> 233  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 233  
 gaggtgcagc tgggtggagtc tggggggaggc ttgggtacagc ctgggggggtc cctgagactc 60  
 tcctgtgcag cctctggatt caccttcagt 90

<210> 234  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 234  
 gaggtgcagc tgggtggagtc tggggggaggc ttggtaaagc ctgggggggtc ccttagactc 60  
 tcctgtgcag cctctggatt cactttcagt 90



<210> 235  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 235  
 gaggtgcagc tgggtggagtc tgggggaggt gtggtacggc ctgggggggc cctgagactc 60  
 tcctgtgcag cctctggatt cacctttgat 90

<210> 236  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 236  
 gaggtgcagc tgggtggagtc tgggggaggc ctggtcaagc ctgggggggc cctgagactc 60  
 tcctgtgcag cctctggatt caccttcagt 90

<210> 237  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 237  
 gaggtgcagc tgggtggagtc tgggggaggc ttggtacagc ctgggggggc cctgagactc 60  
 tcctgtgcag cctctggatt cacctttagt 90

<210> 238  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 238  
 caggtgcagc tgggtggagtc tgggggaggc gtggtccagc ctgggaggtc cctgagactc 60  
 tcctgtgcag cctctggatt caccttcagt 90

<210> 239  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 239  
 caggtgcagc tgggtggagtc tgggggaggc gtggtccagc ctgggaggtc cctgagactc 60  
 tcctgtgcag cctctggatt caccttcagt 90

<210> 240  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 240  
 caggtgcagc tgggtggagtc tgggggaggc gtggtccagc ctgggaggtc cctgagactc 60  
 tcctgtgcag cctctggatt caccttcagt 90

<210> 241  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 241  
 caggtgcagc tgggtggagtc tgggggaggc gtggtccagc ctgggaggtc cctgagactc 60  
 tcctgtgcag cgtctggatt caccttcagt 90

<210> 242  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 242  
 gaagtgcagc tgggtggagtc tgggggagtc gtggtacagc ctgggggggtc cctgagactc 60  
 tcctgtgcag cctctggatt cacctttgat 90

<210> 243  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 243  
 gaggtgcagc tgggtggagtc tgggggaggc ttggtacagc ctgggggggtc cctgagactc 60  
 tcctgtgcag cctctggatt caccttcagt 90

<210> 244  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 244  
 gaggtgcagc tgggtggagtc tgggggaggc ttggtacagc cagggcggtc cctgagactc 60  
 tcctgtacag cttctggatt cacctttggt 90

<210> 245  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 245  
 gaggtgcagc tgggtggagac tggaggaggc ttgatccagc ctgggggggtc cctgagactc 60  
 tcctgtgcag cctctgggtt caccgtcagt 90

<210> 246  
 <211> 90  
 <212> DNA

<213> Homo sapiens

<400> 246

gaggtgcagc tgggtggagtc tgggggaggc ttggtccagc ctgggggggct cctgagactc 60  
tcctgtgcag cctctggatt caccttcagt 90

<210> 247

<211> 90

<212> DNA

<213> Homo sapiens

<400> 247

gaggtgcagc tgggtggagtc tgggggaggc ttggtccagc ctgggggggct cctgagactc 60  
tcctgtgcag cctctggatt caccgtcagt 90

<210> 248

<211> 90

<212> DNA

<213> Homo sapiens

<400> 248

gaggtgcagc tgggtggagtc tgggggaggc ttggtccagc ctggagggtc cctgagactc 60  
tcctgtgcag cctctggatt caccttcagt 90

<210> 249

<211> 90

<212> DNA

<213> Homo sapiens

<400> 249

gaggtgcagc tgggtggagtc tgggggaggc ttggtccagc ctgggggggct cctgaaactc 60  
tcctgtgcag cctctgggtt caccttcagt 90

<210> 250

<211> 90

<212> DNA

<213> Homo sapiens

<400> 250

gaggtgcagc tgggtggagtc cgggggaggc ttagttcagc ctgggggggct cctgagactc 60  
tcctgtgcag cctctggatt caccttcagt 90

<210> 251

<211> 90

<212> DNA

<213> Homo sapiens

<400> 251

gaggtgcagc tgggtggagtc tgggggagtc ttggtacagc ctgggggggct cctgagactc 60  
tcctgtgcag cctctggatt caccgtcagt 90

<210> 252  
<211> 90  
<212> DNA  
<213> Homo sapiens

<400> 252  
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggggac cctgtccctc 60  
acctgcgctg tctctggtgg ctccatcagc 90

<210> 253  
<211> 90  
<212> DNA  
<213> Homo sapiens

<400> 253  
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60  
acctgcgctg tctctggtta ctccatcagc 90

<210> 254  
<211> 90  
<212> DNA  
<213> Homo sapiens

<400> 254  
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcacagac cctgtccctc 60  
acctgcactg tctctggtgg ctccatcagc 90

<210> 255  
<211> 90  
<212> DNA  
<213> Homo sapiens

<400> 255  
cagctgcagc tgcaggagtc cggctcagga ctggtgaagc cttcacagac cctgtccctc 60  
acctgcgctg tctctggtgg ctccatcagc 90

<210> 256  
<211> 90  
<212> DNA  
<213> Homo sapiens

<400> 256  
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcacagac cctgtccctc 60  
acctgcactg tctctggtgg ctccatcagc 90

<210> 257  
<211> 90  
<212> DNA  
<213> Homo sapiens

<400> 257  
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcacagac cctgtccctc 60  
acctgcactg tctctggtgg ctccatcagc 90

<210> 258  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 258  
 caggtgcagc tacagcagtg gggcgcagga ctggtgaagc cttcggagac cctgtccctc 60  
 acctgcgctg tctatggtg gtccttcagt 90

<210> 259  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 259  
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60  
 acctgcactg tctctggtg ctccatcagc 90

<210> 260  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 260  
 caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60  
 acctgcactg tctctggtg ctccatcagc 90

<210> 261  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 261  
 caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60  
 acctgcactg tctctggtg ctccgtcagc 90

<210> 262  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 262  
 caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60  
 acctgcgctg tctctggtg ctccatcagc 90

<210> 263  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 263  
 gaggtgcagc tgggtgcagtc tggagcagag gtgaaaaagc ccggggagtc tctgaagatc 60  
 tcctgtaagg gttctggata cagctttacc 90

<210> 264  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 264  
 gaagtgcagc tgggtgcagtc tggagcagag gtgaaaaagc ccggggagtc tctgaggatc 60  
 tcctgtaagg gttctggata cagctttacc 90

<210> 265  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 265  
 caggtacagc tgcagcagtc aggtccaggā ctggtgaagc cctcgcagac cctctcactc 60  
 acctgtgcca tctccgggga cagtgtctct 90

<210> 266  
 <211> 90  
 <212> DNA  
 <213> Homo sapiens

<400> 266  
 caggtgcagc tgggtgcaatc tgggtctgag ttgaagaagc ctggggcctc agtgaagggtt 60  
 tcctgcaagg cttctggata caccttcact 90

<210> 267  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 267  
 ccgtgtatta ctgtgcgaga ga 22

<210> 268  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 268  
ctgtgtatta ctgtgcgaga ga 22

<210> 269  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 269  
ccgtgtatta ctgtgcgaga gg 22

<210> 270  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 270  
ccgtatatta ctgtgcgaaa ga 22

<210> 271  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 271  
ctgtgtatta ctgtgcgaaa ga 22

<210> 272  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 272  
ctgtgtatta ctgtgcgaga ca 22

<210> 273  
<211> 22

<212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 273

ccatgtatta ctgtgcgaga ca

22

<210> 274

<211> 22

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22

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atcacttgt 69

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atctcctgc 69

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atctcctgc 69

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atctcctgc 69

<210> 299  
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atctcctgc 69

<210> 300  
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atctcctgc 69

<210> 301  
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<400> 301  
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atctcctgc 69

<210> 302  
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<400> 302  
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atctcctgc 69

<210> 303  
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<400> 303  
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ctctcctgc 69

<210> 304  
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<400> 304  
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ctctcctgc 69

<210> 305  
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ctctcctgc 69

<210> 306  
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ctctcctgc 69

<210> 307  
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<210> 308  
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<210> 310  
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<210> 311  
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<210> 312  
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<400> 312  
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<210> 313  
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<210> 314  
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 atcacctgc 69

<210> 315  
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<210> 316  
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 tcctgt 66

<210> 317  
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 tcttgt 66

<210> 318  
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<210> 319  
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tctctgc 66

<210> 320  
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tctctgc 66

<210> 321  
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<210> 322  
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tctctgc 66

<210> 323  
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<210> 324  
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<400> 324



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tctgc 66

<210> 325  
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acctgc 66

<210> 326  
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<400> 326  
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acctgt 66

<210> 327  
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<400> 327  
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acctgc 66

<210> 328  
<211> 66  
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<400> 328  
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acctgc 66

<210> 329  
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acatgc 66

<210> 330  
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 acctgt 66

<210> 331  
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 acctgc 66

<210> 332  
 <211> 66  
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<400> 332  
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 acctgc 66

<210> 333  
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 acctgc 66

<210> 334  
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 acctgc 66

<210> 335  
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 acctgc 66

<210> 336  
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<212> DNA  
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acctgc 66

<210> 337  
<211> 66  
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acctgc 66

<210> 338  
<211> 66  
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<400> 338  
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acctgc 66

<210> 339  
<211> 66  
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<400> 339  
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acctgc 66

<210> 340  
<211> 66  
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tcctgc 66

<210> 341  
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acctgt 66

<210> 342  
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<210> 343  
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 attgt 66

<210> 344  
 <211> 66  
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<400> 344  
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 acctgc 66

<210> 345  
 <211> 66  
 <212> DNA  
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<400> 345  
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 acctgc 66

<210> 346  
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 <223> A, T, C, G, other or unknown

<400> 346  
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<210> 347  
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<220>  
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oligonucleotide

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<223> A, T, C, G, other or unknown

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11

<210> 348  
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oligonucleotide

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<210> 349  
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<210> 350  
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25

<210> 351  
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<210> 352  
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<220>  
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<400> 352  
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 agggctgagg aactgcagt ctactatt 88

<210> 353  
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<220>  
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<400> 353  
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<210> 354  
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<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 354

cgcttcacta agtctagaga caactctaag aatactctct acttgagat gaacagotta 60  
agggctgagg aactgcagt ctactattgt acgag 95

<210> 355

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 355

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24

<210> 356

<211> 15

<212> DNA

<213> Artificial Sequence

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oligonucleotide

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<223> A, T, C, G, other or unknown

<400> 356

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15

<210> 357

<211> 17

<212> DNA

<213> Artificial Sequence

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<222> (7)..(17)

<223> A, T, C, G, other or unknown

<400> 357

cagctcnnnn nnnnnnn

17

<210> 358  
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oligonucleotide

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<400> 358  
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17

<210> 359  
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oligonucleotide

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<400> 359  
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17

<210> 360  
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oligonucleotide

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<223> A, T, C, G, other or unknown

<400> 360  
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12

<210> 361  
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<212> DNA  
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<220>  
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 <223> A, T, C, G, other or unknown

<400> 361  
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22

<210> 362  
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<220>  
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 <223> A, T, C, G, other or unknown

<400> 362  
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19

<210> 363  
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<220>  
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 oligonucleotide

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<400> 363  
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18

<210> 364  
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<220>  
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 <223> A, T, C, G, other or unknown

<400> 364  
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12

<210> 365  
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<220>  
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<220>  
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<400> 365  
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11

<210> 366  
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 <222> (6)..(10)  
 <223> A, T, C, G, other or unknown

<400> 366  
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10

<210> 367  
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<220>  
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<220>  
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 <222> (6)..(11)

<223> A, T, C, G, other or unknown

<400> 367  
gcacnnnnn n

11

<210> 368  
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<212> DNA  
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<220>  
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oligonucleotide

<220>  
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<222> (7)..(16)  
<223> A, T, C, G, other or unknown

<400> 368  
gaggagnnnn nnnnnn

16

<210> 369  
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<220>  
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oligonucleotide

<220>  
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<223> A, T, C, G, other or unknown

<400> 369  
gggacnnnnn nnnnnnnnn

19

<210> 370  
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<220>  
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oligonucleotide

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<223> A, T, C, G, other or unknown

<400> 370  
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14

<210> 371  
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<220>  
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oligonucleotide

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<223> A, T, C, G, other or unknown

<400> 371  
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17

<210> 372  
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<220>  
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oligonucleotide

<220>  
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<223> A, T, C, G, other or unknown

<400> 372  
ctgaagnnnn nnnnnnnnnn nn

22

<210> 373  
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<220>  
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oligonucleotide

<220>  
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<223> A, T, C, G, other or unknown

<400> 373  
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11

<210> 374  
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<220>  
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 oligonucleotide

<220>  
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 <223> A, T, C, G, other or unknown

<400> 374  
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18

<210> 375  
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<220>  
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<220>  
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 <223> A, T, C, G, other or unknown

<400> 375  
 ctggagnnnn nnnnnnnnnn nn

22

<210> 376  
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<220>  
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 <223> A, T, C, G, other or unknown

<400> 376  
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15

<210> 377  
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<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>

<221> modified\_base

<222> (6)..(13)

<223> A, T, C, G, other or unknown

<400> 377

ggtgannnnn nnn

13

<210> 378

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>

<221> modified\_base

<222> (6)..(13)

<223> A, T, C, G, other or unknown

<400> 378

gaagannnnn nnn

13

<210> 379

<211> 10

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>

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<222> (6)..(10)

<223> A, T, C, G, other or unknown

<400> 379

gagtcnnnnn

10

<210> 380

<211> 26

<212> DNA

<213> Artificial Sequence

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oligonucleotide

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 <223> A, T, C, G, other or unknown

<400> 380  
 tccracnnnn nnnnnnnnnn nnnnnn

26

<210> 381  
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<220>  
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 <223> A, T, C, G, other or unknown

<400> 381  
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11

<210> 382  
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<220>  
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<400> 382  
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10

<210> 383  
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 <223> A, T, C, G, other or unknown

<400> 383  
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18

<210> 384  
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oligonucleotide

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gcacnnnnn nnnn

14

<210> 385  
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oligonucleotide

<220>  
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<223> A, T, C, G, other or unknown

<400> 385  
ggtgannnnn nnn

13

<210> 386  
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oligonucleotide

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<223> A, T, C, G, other or unknown

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cccgnnnnnn nn

12



<210> 387  
 <211> 19  
 <212> DNA  
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<220>  
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 oligonucleotide

<220>  
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 <222> (6)..(19)  
 <223> A, T, C, G, other or unknown

<400> 387  
 ggatgnnnnn nnnnnnnnn

19

<210> 388  
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 <212> DNA  
 <213> Artificial Sequence

<220>  
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 oligonucleotide

<220>  
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 <222> (7)..(17)  
 <223> A, T, C, G, other or unknown

<400> 388  
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17

<210> 389  
 <211> 17  
 <212> DNA  
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<220>  
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 oligonucleotide

<220>  
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 <222> (7)..(17)  
 <223> A, T, C, G, other or unknown

<400> 389  
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17

<210> 390  
 <211> 17  
 <212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>

<221> modified\_base

<222> (7)..(17)

<223> A, T, C, G, other or unknown

<400> 390

caarcannnn nnnnnnn

17

<210> 391

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
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<400> 391

gctgtgtatt actgtgcgag

20

<210> 392

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
probe

<400> 392

gccgtgtatt actgtgcgag

20

<210> 393

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
probe

<400> 393

gccgtatatt actgtgcgag

20

<210> 394

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic probe

<400> 394

gccgtgtatt actgtacgag

20

<210> 395

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic probe

<400> 395

gccatgtatt actgtgag

20

<210> 396

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 396

cacatccgtg ttgttcacgg atgtg

25

<210> 397

<211> 88

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 397

aatagtagac tgcagtgtcc tcagccctta agctgttcat ctgcaagtag agagtattct 60  
tagagttgtc tctagactta gtgaagcg 88

<210> 398

<211> 95

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 398  
cgcttcacta agtctagaga caactctaag aatactctct acttgcagat gaacagctta 60  
agggctgagg acactgcagt ctactattgt gcgag 95

<210> 399  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 399  
cgcttcacta agtctagaga caac 24

<210> 400  
<211> 44  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 400  
cacatccgtg ttgttcacgg atgtgggagg atggagactg ggtc 44

<210> 401  
<211> 44  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 401  
cacatccgtg ttgttcacgg atgtgggaga gtggagactg agtc 44

<210> 402  
<211> 44  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 402  
cacatccgtg ttgttcacgg atgtgggtgc ctggagactg cgtc 44

<210> 403

<211> 44  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 403  
cacatccgtg ttgttcacgg atgtgggtgg ctggagactg cgtc

44

<210> 404  
<211> 34  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 404  
cctctactct tgtcacagtg cacaagacat ccag

34

<210> 405  
<211> 20  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 405  
cctctactct tgtcacagtg

20

<210> 406  
<211> 44  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 406  
ggaggatgga ctggatgtct tgtgcactgt gacaagagta gagg

44

<210> 407  
<211> 44  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

## oligonucleotide

<400> 407  
ggagagtgga ctggatgtct tgtgcactgt gacaagagta gagg 44

<210> 408  
<211> 44  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 408  
ggtgcctgga ctggatgtct tgtgcactgt gacaagagta gagg 44

<210> 409  
<211> 44  
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<220>  
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oligonucleotide

<400> 409  
ggtggctgga ctggatgtct tgtgcactgt gacaagagta gagg 44

<210> 410  
<211> 44  
<212> DNA  
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<220>  
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oligonucleotide

<400> 410  
cacatccgtg ttgttcacgg atgtggatcg actgtccagg agac 44

<210> 411  
<211> 44  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 411  
cacatccgtg ttgttcacgg atgtggactg tctgtcccaa ggcc 44

<210> 412  
 <211> 44  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 412  
 cacatccgtg ttgttcacgg atgtggactg actgtccagg agac

44

<210> 413  
 <211> 44  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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 oligonucleotide

<400> 413  
 cacatccgtg ttgttcacgg atgtggaccc tctgccctgg ggcc

44

<210> 414  
 <211> 59  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 414  
 cctctgactg agtgcacaga gtgctttaac ccaaccggct agtgtttagcg gttccccggg

59

<210> 415  
 <211> 69  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 415  
 cctctgactg agtgcacaga gtgctttaac ccaaccggct agtgtttagcg gttccccggg  
 acagtcgat

60  
69

<210> 416  
 <211> 69  
 <212> DNA  
 <213> Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

&lt;400&gt; 416

cctctgactg agtgcacaga gtgctttaac ccaaccggct agtgtagcg gttccccggg 60  
acagacagt 69

&lt;210&gt; 417

&lt;211&gt; 69

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

&lt;400&gt; 417

cctctgactg agtgcacaga gtgctttaac ccaaccggct agtgtagcg gttccccggg 60  
acagtcagt 69

&lt;210&gt; 418

&lt;211&gt; 70

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

&lt;400&gt; 418

cctctgactg agtgcacaga gtgctttaac ccaaccggct agtgtagcg gtstccccgg 60  
ggcagagggt 70

&lt;210&gt; 419

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

&lt;400&gt; 419

cctctgactg agtgcacaga gtgc

24

&lt;210&gt; 420

&lt;211&gt; 13

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide



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<223> A, T, C, G, other or unknown

<400> 420  
ggccnnnnng gcc

13

<210> 421  
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<212> DNA  
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<220>  
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oligonucleotide

<220>  
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<222> (4)..(12)  
<223> A, T, C, G, other or unknown

<400> 421  
ccannnnnnn nntgg

15

<210> 422  
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<212> DNA  
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<220>  
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oligonucleotide

<220>  
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<222> (4)..(9)  
<223> A, T, C, G, other or unknown

<400> 422  
cgannnnnnt gc

12

<210> 423  
<211> 11  
<212> DNA  
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<220>  
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oligonucleotide

<220>  
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<222> (4)..(8)

<223> A, T, C, G, other or unknown

<400> 423  
gccnnnnngg c

11

<210> 424  
<211> 10  
<212> DNA  
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<220>  
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oligonucleotide

<220>  
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<223> A, T, C, G, other or unknown

<400> 424  
gatnnnnatc

10

<210> 425  
<211> 11  
<212> DNA  
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<220>  
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oligonucleotide

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<223> A, T, C, G, other or unknown

<400> 425  
gacnnnnngt c

11

<210> 426  
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oligonucleotide

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<223> A, T, C, G, other or unknown

<400> 426  
gcannnnntg c

11

<210> 427  
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<220>  
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 oligonucleotide.

<220>  
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 <223> A, T, C, G, other or unknown

<400> 427  
 gtatccnnnn nn

12

<210> 428  
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<220>  
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 oligonucleotide

<220>  
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 <222> (4)..(9)  
 <223> A, T, C, G, other or unknown

<400> 428  
 gacnnnnnng tc

12

<210> 429  
 <211> 11  
 <212> DNA  
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<220>  
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 oligonucleotide

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 <222> (4)..(8)  
 <223> A, T, C, G, other or unknown

<400> 429  
 ccannnnntg g

11

<210> 430  
 <211> 12

<212> DNA  
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<220>  
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 oligonucleotide

<220>  
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 <222> (1)..(6)  
 <223> A, T, C, G, other or unknown

<400> 430  
 nnnnnngaga cg

12

<210> 431  
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<220>  
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 oligonucleotide

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 <222> (4)..(9)  
 <223> A, T, C, G, other or unknown

<400> 431  
 ccannnnntt gg

12

<210> 432  
 <211> 10  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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 oligonucleotide

<220>  
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 <222> (4)..(7)  
 <223> A, T, C, G, other or unknown

<400> 432  
 gaannnnnttc

10

<210> 433  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence

<220>

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oligonucleotide

<220>

<221> modified\_base

<222> (7)..(11)

<223> A, T, C, G, other or unknown

<400> 433

ggtctcnnnn n

11

<210> 434

<211> 16

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>

<221> modified\_base

<222> (1)..(10)

<223> A, T, C, G, other or unknown

<400> 434

nnnnnnnnnn ctctc

16

<210> 435

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

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oligonucleotide

<220>

<221> modified\_base

<222> (1)..(9)

<223> A, T, C, G, other or unknown

<400> 435

nnnnnnnnnt ccgcc

15

<210> 436

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

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oligonucleotide

<220>

<221> modified\_base  
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 <223> A, T, C, G, other or unknown

<400> 436  
 ggccnnnnng gcc

13

<210> 437  
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 <212> DNA  
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<220>  
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 oligonucleotide

<220>  
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 <222> (4)..(9)  
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<400> 437  
 ccannnnnnt gg

12

<210> 438  
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 oligonucleotide

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 <222> (4)..(9)  
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<400> 438  
 gacnnnnng tc

12

<210> 439  
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 oligonucleotide

<220>  
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 <222> (4)..(9)  
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<400> 439  
cgannnnnnt gc

12

<210> 440  
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oligonucleotide

<220>  
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<222> (4)..(8)  
<223> A, T, C, G, other or unknown

<400> 440  
gcannnnntg c

11

<210> 441  
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<220>  
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oligonucleotide

<220>  
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<222> (4)..(8)  
<223> A, T, C, G, other or unknown

<400> 441  
ccannnnntg g

11

<210> 442  
<211> 10  
<212> DNA  
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<220>  
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oligonucleotide

<220>  
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<222> (4)..(7)  
<223> A, T, C, G, other or unknown

<400> 442  
gaannnnnttc

10

<210> 443  
<211> 12  
<212> DNA  
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<220>  
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oligonucleotide

<220>  
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<222> (1)..(6)  
<223> A, T, C, G, other or unknown

<400> 443  
nnnnnngaga cg

12

<210> 444  
<211> 12  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>  
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Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	Lys	Ser	Cys	Ala	Ala	Ala	His	
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	710	720

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 ctgttttagct cccgctctga ttccaacgag gaaagcacgt tatacgtgct cgtcaaagca 7029  
 accatagtac gcgccctgta gcggcgcat t aagcgcggcg ggtgtggtgg ttacgcgcag 7089  
 cgtgaccgt acacttgcca gcgccctagc gcccgctcct ttcgctttct tcccttccct 7149  
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 cagctgttgc ccgtctcact ggtgaaaaga aaaaccaccc tggatccaag cttgcaggtg 7569  
 gcacttttcg gggaaatgtg cgcggaaccc ctatttgttt atttttctaa atacattcaa 7629  
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 ttctcaccct tttgaatctt tacctacaca ttactcaggc attgcattta aaatatatga 9369  
 ggggttctaaa aatttttatc cttgcgttga aataaaggct tctcccgcaa aagtattaca 9429  
 gggtcataat gtttttggtt caaccgattt agctttatgc tctgaggctt tattgcttaa 9489  
 ttttgctaatt tctttgcctt gcctgtatga tttattggat gtt 9532

<210> 452  
 <211> 20  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism: MALIA3 peptide  
 sequence

<400> 452  
 Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser  
 1 5 10 15  
 His Ser Ala Gln  
 20

<210> 453  
 <211> 367  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism: MALIA3 protein  
 sequence

<400> 453  
 Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala  
 1 5 10 15  
 Ala Gln Pro Ala Met Ala Glu Val Gln Leu Leu Glu Ser Gly Gly Gly  
 20 25 30  
 Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly  
 35 40 45  
 Phe Thr Phe Ser Ser Tyr Ala Met Ser Trp Val Arg Gln Ala Pro Gly  
 50 55 60  
 Lys Gly Leu Glu Trp Val Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr  
 65 70 75 80  
 Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn  
 85 90 95  
 Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp  
 100 105 110  
 Thr Ala Val Tyr Tyr Cys Ala Lys Asp Tyr Glu Gly Thr Gly Tyr Ala  
 115 120 125  
 Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser Ala Ser  
 130 135 140  
 Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr  
 145 150 155 160  
 Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro

112

165

170

175

Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val  
180 185 190

His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser  
195 200 205

Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile  
210 215 220

Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val  
225 230 235 240

Glu Pro Lys Ser Cys Ala Ala Ala His His His His His His Ser Ala  
245 250 255

Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala Asp Ile  
260 265 270

Asn Asp Asp Arg Met Ala Gly Ala Ala Glu Thr Val Glu Ser Cys Leu  
275 280 285

Ala Lys Pro His Thr Glu Asn Ser Phe Thr Asn Val Trp Lys Asp Asp  
290 295 300

Lys Thr Leu Asp Arg Tyr Ala Asn Tyr Glu Gly Cys Leu Trp Asn Ala  
305 310 315 320

Thr Gly Val Val Val Cys Thr Gly Asp Glu Thr Gln Cys Tyr Gly Thr  
325 330 335

Trp Val Pro Ile Gly Leu Ala Ile Pro Glu Asn Glu Gly Gly Gly Ser  
340 345 350

Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Thr  
355 360 365

<210> 454

<211> 152

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: MALIA3 protein  
sequence

<400> 454

Ser Gly Asp Phe Asp Tyr Glu Lys Met Ala Asn Ala Asn Lys Gly Ala  
1 5 10 15

Met Thr Glu Asn Ala Asp Glu Asn Ala Leu Gln Ser Asp Ala Lys Gly  
20 25 30

Lys Leu Asp Ser Val Ala Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe  
35 40 45

Ile Gly Asp Val Ser Gly Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp  
 50 55 60

Phe Ala Gly Ser Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn  
 65 70 75 80

Ser Pro Leu Met Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln  
 85 90 95

Ser Val Glu Cys Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu  
 100 105 110

Phe Ser Ile Asp Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala  
 115 120 125

Phe Leu Leu Tyr Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala  
 130 135 140

Asn Ile Leu Arg Asn Lys Glu Ser  
 145 150

&lt;210&gt; 455

&lt;211&gt; 15

&lt;212&gt; PRT

&lt;213&gt; Unknown Organism

&lt;220&gt;

<223> Description of Unknown Organism: MALIA3 peptide  
sequence

&lt;400&gt; 455

Met Pro Val Leu Leu Gly Ile Pro Leu Leu Arg Phe Leu Gly  
 1 5 10 15

&lt;210&gt; 456

&lt;211&gt; 348

&lt;212&gt; PRT

&lt;213&gt; Unknown Organism

&lt;220&gt;

<223> Description of Unknown Organism: MALIA3 protein  
sequence

&lt;400&gt; 456

Met Ala Val Tyr Phe Val Thr Gly Lys Leu Gly Ser Gly Lys Thr Leu  
 1 5 10 15

Val Ser Val Gly Lys Ile Gln Asp Lys Ile Val Ala Gly Cys Lys Ile  
 20 25 30

Ala Thr Asn Leu Asp Leu Arg Leu Gln Asn Leu Pro Gln Val Gly Arg  
 35 40 45

Phe Ala Lys Thr Pro Arg Val Leu Arg Ile Pro Asp Lys Pro Ser Ile  
 50 55 60

Ser Asp Leu Leu Ala Ile Gly Arg Gly Asn Asp Ser Tyr Asp Glu Asn  
 65 70 75 80  
 Lys Asn Gly Leu Leu Val Leu Asp Glu Cys Gly Thr Trp Phe Asn Thr  
 85 90 95  
 Arg Ser Trp Asn Asp Lys Glu Arg Gln Pro Ile Ile Asp Trp Phe Leu  
 100 105 110  
 His Ala Arg Lys Leu Gly Trp Asp Ile Ile Phe Leu Val Gln Asp Leu  
 115 120 125  
 Ser Ile Val Asp Lys Gln Ala Arg Ser Ala Leu Ala Glu His Val Val  
 130 135 140  
 Tyr Cys Arg Arg Leu Asp Arg Ile Thr Leu Pro Phe Val Gly Thr Leu  
 145 150 155 160  
 Tyr Ser Leu Ile Thr Gly Ser Lys Met Pro Leu Pro Lys Leu His Val  
 165 170 175  
 Gly Val Val Lys Tyr Gly Asp Ser Gln Leu Ser Pro Thr Val Glu Arg  
 180 185 190  
 Trp Leu Tyr Thr Gly Lys Asn Leu Tyr Asn Ala Tyr Asp Thr Lys Gln  
 195 200 205  
 Ala Phe Ser Ser Asn Tyr Asp Ser Gly Val Tyr Ser Tyr Leu Thr Pro  
 210 215 220  
 Tyr Leu Ser His Gly Arg Tyr Phe Lys Pro Leu Asn Leu Gly Gln Lys  
 225 230 235 240  
 Met Lys Leu Thr Lys Ile Tyr Leu Lys Lys Phe Ser Arg Val Leu Cys  
 245 250 255  
 Leu Ala Ile Gly Phe Ala Ser Ala Phe Thr Tyr Ser Tyr Ile Thr Gln  
 260 265 270  
 Pro Lys Pro Glu Val Lys Lys Val Val Ser Gln Thr Tyr Asp Phe Asp  
 275 280 285  
 Lys Phe Thr Ile Asp Ser Ser Gln Arg Leu Asn Leu Ser Tyr Arg Tyr  
 290 295 300  
 Val Phe Lys Asp Ser Lys Gly Lys Leu Ile Asn Ser Asp Asp Leu Gln  
 305 310 315 320  
 Lys Gln Gly Tyr Ser Leu Thr Tyr Ile Asp Leu Cys Thr Val Ser Ile  
 325 330 335  
 Lys Lys Gly Asn Ser Asn Glu Ile Val Lys Cys Asn  
 340 345

&lt;210&gt; 457

&lt;211&gt; 24

&lt;212&gt; DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 457

tggaagaggc acgttctttt cttt

24

<210> 458

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 458

cttttctttg ttgccgttgg ggtg

24

<210> 459

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 459

acactctccc ctgttgaagc tctt

24

<210> 460

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 460

accgcctcca ccgggcgcgc cttattaaca ctctcccctg ttgaagctct t

51

<210> 461

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 461

tgaacattct gtaggggcca ctg

23

<210> 462

<211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Primer

<400> 462  
 agagcattct gcaggggcca ctg

23

<210> 463  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Primer

<400> 463  
 accgcctcca ccgggcgcgc cttattatga acattctgta ggggccactg

50

<210> 464  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Primer

<400> 464  
 accgcctcca ccgggcgcgc cttattaaga gcattctgca ggggccactg

50

<210> 465  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Primer

<400> 465  
 cgactggagc acgaggacac tga

23

<210> 466  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Primer

<400> 466  
 ggacactgac atggactgaa ggagta

26



<210> 467  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 467  
gggaggatgg agactgggtc

20

<210> 468  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 468  
gggaagatgg agactgggtc

20

<210> 469  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 469  
gggagagtgg agactgagtc

20

<210> 470  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 470  
gggtgcctgg agactgcgtc

20

<210> 471  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 471  
gggtggctgg agactgcgctc 20

<210> 472  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 472  
gggaggatgg agactgggtc atctggatgt cttgtgcact gtgacagagg 50

<210> 473  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 473  
gggaagatgg agactgggtc atctggatgt cttgtgcact gtgacagagg 50

<210> 474  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 474  
gggagagtgg agactgggtc atctggatgt cttgtgcact gtgacagagg 50

<210> 475  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 475  
gggtgcctgg agactgggtc atctggatgt cttgtgcact gtgacagagg 50

<210> 476  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 476  
 ggggtggctgg agactgggtc atctggatgt cttgtgcact gtgacagagg

50

<210> 477  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 477  
 gggagtctgg agactgggtc atctggatgt cttgtgcact gtgacagagg

50

<210> 478  
 <211> 42  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 478  
 cctctgtcac agtgacaag acatccagat gaccagtct cc

42

<210> 479  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Primer

<400> 479  
 cctctgtcac agtgacaag ac

22

<210> 480  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Primer

&lt;400&gt; 480

acactctccc ctgttgaagc tctt

24

&lt;210&gt; 481

&lt;211&gt; 668

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(668)

&lt;400&gt; 481

agt gca caa gac atc cag atg acc cag tct cca gcc acc ctg tct gtg	48
Ser Ala Gln Asp Ile Gln Met Thr Gln Ser Pro Ala Thr Leu Ser Val	
1 5 10 15	
tct cca ggg gaa agg gcc acc ctc tcc tgc agg gcc agt cag agt gtt	96
Ser Pro Gly Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val	
20 25 30	
agt aac aac tta gcc tgg tac cag cag aaa cct ggc cag gtt ccc agg	144
Ser Asn Asn Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Val Pro Arg	
35 40 45	
ctc ctc atc tat ggt gca tcc acc agg gcc act gat atc cca gcc agg	192
Leu Leu Ile Tyr Gly Ala Ser Thr Arg Ala Thr Asp Ile Pro Ala Arg	
50 55 60	
ttc agt ggc agt ggg tct ggg aca gac ttc act ctc acc atc agc aga	240
Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg	
65 70 75 80	
ctg gag cct gaa gat ttt gca gtg tat tac tgt cag cgg tat ggt agc	288
Leu Glu Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Arg Tyr Gly Ser	
85 90 95	
tca ccg ggg tgg acg ttc ggc caa ggg acc aag gtg gaa atc aaa cga	336
Ser Pro Gly Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg	
100 105 110	
act gtg gct gca cca tct gtc ttc atc ttc ccg cca tct gat gag cag	384
Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln	
115 120 125	
ttg aaa tct gga act gcc tct gtt gtg tgc ctg ctg aat aac ttc tat	432
Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr	
130 135 140	
ccc aga gag gcc aaa gta cag tgg aag gtg gat aac gcc ctc caa tcg	480
Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser	
145 150 155 160	
ggt aac tcc cag gag agt gtc aca gag cag gac agc aag gac agc acc	528

Gly	Asn	Ser	Gln	Glu	Ser	Val	Thr	Glu	Gln	Asp	Ser	Lys	Asp	Ser	Thr		
				165					170					175			
tac	agc	ctc	agc	agc	acc	ctg	acg	ctg	agc	aaa	gca	gac	tac	gag	aaa	576	
Tyr	Ser	Leu	Ser	Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr	Glu	Lys		
			180					185					190				
cac	aaa	gtc	tac	gcc	tgc	gaa	gtc	acc	cat	cag	ggc	ctg	agc	tcg	cct	624	
His	Lys	Val	Tyr	Ala	Cys	Glu	Val	Thr	His	Gln	Gly	Leu	Ser	Ser	Pro		
		195					200					205					
gtc	aca	aag	agc	ttc	aac	aaa	gga	gag	tgt	aag	ggc	gaa	ttc	gc		668	
Val	Thr	Lys	Ser	Phe	Asn	Lys	Gly	Glu	Cys	Lys	Gly	Glu	Phe	Ala			
	210					215					220						

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<210> 482
<211> 223
<212> PRT
<213> Homo sapiens
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<400> 482																	
Ser	Ala	Gln	Asp	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ala	Thr	Leu	Ser	Val		
1				5					10					15			
Ser	Pro	Gly	Glu	Arg	Ala	Thr	Leu	Ser	Cys	Arg	Ala	Ser	Gln	Ser	Val		
			20					25					30				
Ser	Asn	Asn	Leu	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Val	Pro	Arg		
		35					40					45					
Leu	Leu	Ile	Tyr	Gly	Ala	Ser	Thr	Arg	Ala	Thr	Asp	Ile	Pro	Ala	Arg		
50						55					60						
Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Arg		
65					70					75					80		
Leu	Glu	Pro	Glu	Asp	Phe	Ala	Val	Tyr	Tyr	Cys	Gln	Arg	Tyr	Gly	Ser		
				85					90					95			
Ser	Pro	Gly	Trp	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys	Arg		
			100					105					110				
Thr	Val	Ala	Ala	Pro	Ser	Val	Phe	Ile	Phe	Pro	Pro	Ser	Asp	Glu	Gln		
		115					120					125					
Leu	Lys	Ser	Gly	Thr	Ala	Ser	Val	Val	Cys	Leu	Leu	Asn	Asn	Phe	Tyr		
130						135					140						
Pro	Arg	Glu	Ala	Lys	Val	Gln	Trp	Lys	Val	Asp	Asn	Ala	Leu	Gln	Ser		
145					150					155					160		
Gly	Asn	Ser	Gln	Glu	Ser	Val	Thr	Glu	Gln	Asp	Ser	Lys	Asp	Ser	Thr		
				165					170					175			
Tyr	Ser	Leu	Ser	Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr	Glu	Lys		
			180					185					190				

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro  
 195 200 205

Val Thr Lys Ser Phe Asn Lys Gly Glu Cys Lys Gly Glu Phe Ala  
 210 215 220

<210> 483  
 <211> 13  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 483  
 agccaccctg tct

13

<210> 484  
 <211> 700  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)..(699)

<400> 484  
 agt gca caa gac atc cag atg acc cag tct cct gcc acc ctg tct gtg 48  
 Ser Ala Gln Asp Ile Gln Met Thr Gln Ser Pro Ala Thr Leu Ser Val  
 1 5 10 15  
 tct cca ggt gaa aga gcc acc ctg tcc tgc agg gcc agt cag gtg tct 96  
 Ser Pro Gly Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Val Ser  
 20 25 30  
 cca ggg gaa aga gcc acc ctg tcc tgc aat ctt ctg agc aac tta gcc 144  
 Pro Gly Glu Arg Ala Thr Leu Ser Cys Asn Leu Leu Ser Asn Leu Ala  
 35 40 45  
 tgg tac cag cag aaa cct ggc cag gct ccc agg ctg ctg atc tat ggt 192  
 Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile Tyr Gly  
 50 55 60  
 gct tcc acc ggg gcc att ggt atc cca gcc agg ttc agt ggc agt ggg 240  
 Ala Ser Thr Gly Ala Ile Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly  
 65 70 75 80  
 tct ggg aca gag ttc act ctg acc atc agc agc ctg cag tct gaa gat 288  
 Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Ser Glu Asp  
 85 90 95  
 ttt gca gtg tat ttc tgt cag cag tat ggt acc tca ccg ccc act ttc 336  
 Phe Ala Val Tyr Phe Cys Gln Gln Tyr Gly Thr Ser Pro Pro Thr Phe  
 100 105 110

ggc gga ggg acc aag gtg gag atc aaa cga act gtg gct gca cca tct 384  
 Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser  
 115 120 125  
 gtc ttc atc ttc ccg cca tct gat gag cag ttg aaa tct gga act gcc 432  
 Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala  
 130 135 140  
 tct gtt gtg tgc ccg ctg aat aac ttc tat ccc aga gag gcc aaa gta 480  
 Ser Val Val Cys Pro Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val  
 145 150 155 160  
 cag tgg aag gtg gat aac gcc ctc caa tcg ggt aac tcc cag gag agt 528  
 Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser  
 165 170 175  
 gtc aca gag cag gac aac aag gac agc acc tac agc ctc agc agc acc 576  
 Val Thr Glu Gln Asp Asn Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr  
 180 185 190  
 ctg acg ctg agc aaa gta gac tac gag aaa cac gaa gtc tac gcc tgc 624  
 Leu Thr Leu Ser Lys Val Asp Tyr Glu Lys His Glu Val Tyr Ala Cys  
 195 200 205  
 gaa gtc acc cat cag ggc ctt agc tcg ccc gtc acg aag agc ttc aac 672  
 Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn  
 210 215 220  
 agg gga gag tgt aag aaa gaa ttc gtt t 700  
 Arg Gly Glu Cys Lys Lys Glu Phe Val  
 225 230

<210> 485  
 <211> 233  
 <212> PRT  
 <213> Homo sapiens

<400> 485  
 Ser Ala Gln Asp Ile Gln Met Thr Gln Ser Pro Ala Thr Leu Ser Val  
 1 5 10 15  
 Ser Pro Gly Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Val Ser  
 20 25 30  
 Pro Gly Glu Arg Ala Thr Leu Ser Cys Asn Leu Leu Ser Asn Leu Ala  
 35 40 45  
 Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile Tyr Gly  
 50 55 60  
 Ala Ser Thr Gly Ala Ile Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly  
 65 70 75 80  
 Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Ser Glu Asp  
 85 90 95  
 Phe Ala Val Tyr Phe Cys Gln Gln Tyr Gly Thr Ser Pro Pro Thr Phe

100										105					110															
Gly	Gly	Gly	Thr	Lys	Val	Glu	Ile	Lys	Arg	Thr	Val	Ala	Ala	Pro	Ser															
		115					120						125																	
Val	Phe	Ile	Phe	Pro	Pro	Ser	Asp	Glu	Gln	Leu	Lys	Ser	Gly	Thr	Ala															
	130					135					140																			
Ser	Val	Val	Cys	Pro	Leu	Asn	Asn	Phe	Tyr	Pro	Arg	Glu	Ala	Lys	Val															
145					150				155						160															
Gln	Trp	Lys	Val	Asp	Asn	Ala	Leu	Gln	Ser	Gly	Asn	Ser	Gln	Glu	Ser															
				165					170					175																
Val	Thr	Glu	Gln	Asp	Asn	Lys	Asp	Ser	Thr	Tyr	Ser	Leu	Ser	Ser	Thr															
			180					185					190																	
Leu	Thr	Leu	Ser	Lys	Val	Asp	Tyr	Glu	Lys	His	Glu	Val	Tyr	Ala	Cys															
		195					200					205																		
Glu	Val	Thr	His	Gln	Gly	Leu	Ser	Ser	Pro	Val	Thr	Lys	Ser	Phe	Asn															
	210					215					220																			
Arg	Gly	Glu	Cys	Lys	Lys	Glu	Phe	Val																						
225						230																								

&lt;210&gt; 486

&lt;211&gt; 419

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic 3-23  
VH nucleotide sequence

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (12)..(419)

&lt;400&gt; 486

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ctgtctgaac g gcc cag ccg gcc atg gcc gaa gtt caa ttg tta gag tct 50
          Ala Gln Pro Ala Met Ala Glu Val Gln Leu Leu Glu Ser
              1              5              10

ggt ggc ggt ctt gtt cag cct ggt ggt tct tta cgt ctt tct tgc gct 98
Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala
      15              20              25

gct tcc gga ttc act ttc tct tcg tac gct atg tct tgg gtt cgc caa 146
Ala Ser Gly Phe Thr Phe Ser Ser Tyr Ala Met Ser Trp Val Arg Gln
      30              35              40              45

gct cct ggt aaa ggt ttg gag tgg gtt tct gct atc tct ggt tct ggt 194
Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ala Ile Ser Gly Ser Gly
          50              55              60

```



ggc agt act tac tat gct gac tcc gtt aaa ggt cgc ttc act atc tct 242  
 Gly Ser Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser  
                   65                                  70                                  75

aga gac aac tct aag aat act ctc tac ttg cag atg aac agc tta agg 290  
 Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg  
                   80                                  85                                  90

gct gag gac act gca gtc tac tat tgc gct aaa gac tat gaa ggt act 338  
 Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Asp Tyr Glu Gly Thr  
                   95                                  100                                  105

ggc tat gct ttc gac ata tgg ggt caa ggt act atg gtc acc gtc tct 386  
 Gly Tyr Ala Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser  
 110                                  115                                  120                                  125

agt gcc tcc acc aag ggc cca tcg gtc ttc ccc 419  
 Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro  
                                   130                                  135

<210> 487

<211> 136

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic 3-23

VH protein sequence

<400> 487

Ala Gln Pro Ala Met Ala Glu Val Gln Leu Leu Glu Ser Gly Gly Gly  
   1                                  5                                  10                                  15

Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly  
                   20                                  25                                  30

Phe Thr Phe Ser Ser Tyr Ala Met Ser Trp Val Arg Gln Ala Pro Gly  
                   35                                  40                                  45

Lys Gly Leu Glu Trp Val Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr  
                   50                                  55                                  60

Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn  
                   65                                  70                                  75                                  80

Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp  
                   85                                  90                                  95

Thr Ala Val Tyr Tyr Cys Ala Lys Asp Tyr Glu Gly Thr Gly Tyr Ala  
                   100                                  105                                  110

Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser Ala Ser  
                   115                                  120                                  125

Thr Lys Gly Pro Ser Val Phe Pro  
                   130                                  135

<210> 488  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Primer

<400> 488  
 ctgtctgaac ggcccagccg

20

<210> 489  
 <211> 83  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 489  
 ctgtctgaac ggcccagccg gccatggccg aagttcaatt gttagagtct ggtggcggtc 60  
 ttgttcagcc tgggtgttct tta 83

<210> 490  
 <211> 54  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 490  
 gaaagtgaat ccggaagcag cgcaagaaag acgtaaagaa ccaccaggct gaac

54

<210> 491  
 <211> 42  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 491  
 agaaaccac tccaaacctt taccaggagc ttggcgaacc ca

42

<210> 492  
 <211> 94  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 492

agtgtcctca gcccttaagc tgttcacatctg caagtagaga gtattcttag agttgtctct 60  
agagatagtg aagcgacctt taacggagtc agca 94

<210> 493

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 493

gcttaagggc tgaggacact gcagtctact attgcgctaa agactatgaa ggtactgggt 60  
atgctttcga catatggggt c 81

<210> 494

<211> 72

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 494

ggggaagacc gatgggccct tgggtggaggc actagagacg gtgaccatag taccttgacc 60  
tatgtcgaaa gc 72

<210> 495

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 495

ggggaagacc gatgggccct tgg 23

<210> 496

<211> 56

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>  
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 <222> (22)..(24)  
 <223> A, T, C, G, other or unknown

<220>  
 <221> modified\_base  
 <222> (28)..(30)  
 <223> A, T, C, G, other or unknown

<220>  
 <221> modified\_base  
 <222> (34)..(36)  
 <223> A, T, C, G, other or unknown

<220>  
 <223> nnn codes for any amino acid but Cys

<400> 496  
 ggttcggat tcactttctc tnnntacnnn atgnnntggg ttcgccaagc tcctgg 56

<210> 497  
 <211> 68  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<220>  
 <221> modified\_base  
 <222> (19)..(21)  
 <223> A, T, C or G

<220>  
 <221> modified\_base  
 <222> (25)..(30)  
 <223> A, T, C or G

<220>  
 <221> modified\_base  
 <222> (40)..(42)  
 <223> A, T, C or G

<220>  
 <221> modified\_base  
 <222> (46)..(48)  
 <223> A, T, C or G

<400> 497  
 ggtttggagt gggtttctnn natcnnnnnn tctgggtggen nnaactnnnta tgctgactcc 60  
 gttaaagg 68

<210> 498

<211> 912  
 <212> DNA  
 <213> Escherichia coli

<400> 498  
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 gaccgactgc ttgagcaaaa gccacgctta actgctgatac aggcattgga tggtattcgc 120  
 caaaccagtc gtcaggatct taacctgagg ctttttttac ctactctgca agcagcgaca 180  
 tctggtttga cacagagcga tccgcgtcgt cagttggtag aaacattaac acgttgggat 240  
 ggcatcaatt tgcttaataa tgatggtaaa acctggcagc agccaggctc tgccatcctg 300  
 aacgtttggc tgaccagtat gttgaagcgt accgtagtgg ctgccgtacc tatgccattt 360  
 gataagtggg acagcgccag tggctacgaa acaaccagg acggcccaac tggttcgctg 420  
 aatataagtg ttggagcaaa aattttgtat gaggcggtgc agggagacaa atcaccaatc 480  
 ccacaggcgg ttgatctgtt tgctgggaaa ccacagcagg aggttggtt ggctgcgctg 540  
 gaagatacct gggagactct ttccaaacgc tatggcaata atgtgagtaa ctggaaaaca 600  
 cctgcaatgg ccttaacgtt ccggggcaaat aatttctttg gtgtaccgca ggccgcagcg 660  
 gaagaaaacgc gtcatacaggc ggagtatcaa aaccgtggaa cagaaaacga tatgattgtt 720  
 ttctcaccac cgacaagcga tcgtcctgtg cttgcctggg atgtggtcgc acccggtcag 780  
 agtgggttta ttgctcccga tggaacagtt gataagcact atgaagatca gctgaaaatg 840  
 tacgaaaatt ttggccgtaa gtcgctctgg ttaacgaagc aggatgtgga ggcgcataag 900  
 ggtcgtcta ga 912

<210> 499  
 <211> 10  
 <212> DNA  
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<220>  
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 oligonucleotide

<220>  
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 <222> (4)..(7)  
 <223> A, T, C, G, other or unknown

<400> 499  
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10

<210> 500  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<220>  
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 <222> (1)..(15)  
 <223> A, T, C, G, other or unknown

<400> 500  
 nnnnnnnnnn nnnnngtccc

20

<210> 501  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<220>  
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 <222> (4)..(8)  
 <223> A, T, C, G, other or unknown

<400> 501  
 gcannnnntg c

11

<210> 502  
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 <212> DNA  
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<220>  
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 oligonucleotide

<220>  
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 <222> (4)..(7)  
 <223> A, T, C, G, other or unknown

<400> 502  
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10

<210> 503  
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 <212> DNA  
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<220>  
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<220>  
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 <222> (1)..(7)  
 <223> A, T, C, G, other or unknown

<400> 503  
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12

<210> 504  
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<213> Artificial Sequence

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oligonucleotide

<220>

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<222> (7)..(12)

<223> A, T, C, G, other or unknown

<400> 504

gtatccnnnn nn

12

<210> 505

<211> 12

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

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<222> (4)..(9)

<223> A, T, C, G, other or unknown

<400> 505

gcannnnnnt cg

12

<210> 506

<211> 11

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>

<221> modified\_base

<222> (4)..(8)

<223> A, T, C, G, other or unknown

<400> 506

gccnnnnngg c

11

<210> 507

<211> 11

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

## oligonucleotide

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 <223> A, T, C, G, other or unknown

<400> 507  
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11

<210> 508  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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 oligonucleotide

<220>  
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 <222> (4)..(11)  
 <223> A, T, C, G, other or unknown

<400> 508  
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11

<210> 509  
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 <212> DNA  
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<220>  
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 oligonucleotide

<220>  
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 <223> A, T, C, G, other or unknown

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 gacnnnnngt c

11

<210> 510  
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 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<220>  
 <221> modified\_base



<222> (4)..(9)  
 <223> A, T, C, G, other or unknown

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12

<210> 511  
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 <212> DNA  
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<220>  
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 oligonucleotide

<220>  
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 <223> A, T, C, G, other or unknown

<400> 511  
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11

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 <212> DNA  
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<220>  
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 oligonucleotide

<220>  
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 <222> (1)..(9)  
 <223> A, T, C, G, other or unknown

<400> 512  
 nnnnnnnnng caggt

15

<210> 513  
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 <212> DNA  
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<220>  
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 oligonucleotide

<220>  
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 <223> A, T, C, G, other or unknown

<400> 513

acctgcnnnn n

11

<210> 514  
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<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>  
<221> modified\_base  
<222> (5)..(9)  
<223> A, T, C, G, other or unknown

<400> 514  
ggccnnnnng gcc

13

<210> 515  
<211> 15  
<212> DNA  
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<220>  
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oligonucleotide

<220>  
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<223> A, T, C, G, other or unknown

<400> 515  
ccannnnnnn nntgg

15

<210> 516  
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<212> DNA  
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<220>  
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oligonucleotide

<220>  
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<400> 516  
cgtctcnnnn n

11

<210> 517

<211> 12  
 <212> DNA  
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<220>  
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 oligonucleotide

<220>  
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 <222> (1)..(6)  
 <223> A, T, C, G, other or unknown

<400> 517  
 nnnnnngaga cg

12

<210> 518  
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 <212> DNA  
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<220>  
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 <222> (1)..(10)  
 <223> A, T, C, G, other or unknown

<400> 518  
 nnnnnnnnnn ctcctc

16

<210> 519  
 <211> 16  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<220>  
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 <222> (7)..(16)  
 <223> A, T, C, G, other or unknown

<400> 519  
 gaggagnnnn nnnnnn

16

<210> 520  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<220>  
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 <222> (4)..(8)  
 <223> A, T, C, G, other or unknown

<400> 520  
 cctnnnnnag g

11

<210> 521  
 <211> 12  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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 oligonucleotide

<220>  
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 <222> (4)..(9)  
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<400> 521  
 ccannnnnnnt gg

12

<210> 522  
 <211> 6680  
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<220>  
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 nucleotide sequence

<220>  
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 <222> (201)..(1058)

<220>  
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 <222> (2269)..(2682)

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 <222> (2723)..(2866)

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 <222> (3767)..(3850)

<220>  
 <221> CDS

&lt;222&gt; (4198)..(5799)

&lt;400&gt; 522

gacgaaaggg cctcgtgata cgcctatatt tataggttaa tgcacatgata ataattggtt 60  
cttagacgtc aggtggcact tttcggggaa atgtgcgcgg aaccctatt tgtttatttt 120  
tctaaataca ttcaaatatg tatccgctca tgagacaata accctgataa atgcttcaat 180  
aatattgaaa aaggaagagt atg agt att caa cat ttc cgt gtc gcc ctt att 233  
Met Ser Ile Gln His Phe Arg Val Ala Leu Ile  
1 5 10  
ccc ttt ttt gcg gca ttt tgc ctt cct gtt ttt gct cac cca gaa acg 281  
Pro Phe Phe Ala Ala Phe Cys Leu Pro Val Phe Ala His Pro Glu Thr  
15 20 25  
ctg gtg aaa gta aaa gat gct gaa gat cag ttg ggt gcc cga gtg ggt 329  
Leu Val Lys Val Lys Asp Ala Glu Asp Gln Leu Gly Ala Arg Val Gly  
30 35 40  
tac atc gaa ctg gat ctc aac agc ggt aag atc ctt gag agt ttt cgc 377  
Tyr Ile Glu Leu Asp Leu Asn Ser Gly Lys Ile Leu Glu Ser Phe Arg  
45 50 55  
ccc gaa gaa cgt ttt cca atg atg agc act ttt aaa gtt ctg cta tgt 425  
Pro Glu Glu Arg Phe Pro Met Met Ser Thr Phe Lys Val Leu Leu Cys  
60 65 70 75  
ggc gcg gta tta tcc cgt att gac gcc ggg caa gag caa ctc ggt cgc 473  
Gly Ala Val Leu Ser Arg Ile Asp Ala Gly Gln Glu Gln Leu Gly Arg  
80 85 90  
cgc ata cac tat tct cag aat gac ttg gtt gag tac tca cca gtc aca 521  
Arg Ile His Tyr Ser Gln Asn Asp Leu Val Glu Tyr Ser Pro Val Thr  
95 100 105  
gaa aag cat ctt acg gat ggc atg aca gta aga gaa tta tgc agt gct 569  
Glu Lys His Leu Thr Asp Gly Met Thr Val Arg Glu Leu Cys Ser Ala  
110 115 120  
gcc ata acc atg agt gat aac act gcg gcc aac tta ctt ctg aca acg 617  
Ala Ile Thr Met Ser Asp Asn Thr Ala Ala Asn Leu Leu Leu Thr Thr  
125 130 135  
atc gga gga ccg aag gag cta acc gct ttt ttg cac aac atg ggg gat 665  
Ile Gly Gly Pro Lys Glu Leu Thr Ala Phe Leu His Asn Met Gly Asp  
140 145 150 155  
cat gta act cgc ctt gat cgt tgg gaa ccg gag ctg aat gaa gcc ata 713  
His Val Thr Arg Leu Asp Arg Trp Glu Pro Glu Leu Asn Glu Ala Ile  
160 165 170  
cca aac gac gag cgt gac acc acg atg cct gta gca atg gca aca acg 761  
Pro Asn Asp Glu Arg Asp Thr Thr Met Pro Val Ala Met Ala Thr Thr  
175 180 185  
ttg cgc aaa cta tta act ggc gaa cta ctt act cta gct tcc cgg caa 809

Leu Arg Lys Leu Leu Thr Gly Glu Leu Leu Thr Leu Ala Ser Arg Gln  
 190 195 200  
 caa tta ata gac tgg atg gag gcg gat aaa gtt gca gga cca ctt ctg 857  
 Gln Leu Ile Asp Trp Met Glu Ala Asp Lys Val Ala Gly Pro Leu Leu  
 205 210 215  
 cgc tcg gcc ctt ccg gct ggc tgg ttt att gct gat aaa tct gga gcc 905  
 Arg Ser Ala Leu Pro Ala Gly Trp Phe Ile Ala Asp Lys Ser Gly Ala  
 220 225 230 235  
 ggt gag cgt ggg tct cgc ggt atc att gca gca ctg ggg cca gat ggt 953  
 Gly Glu Arg Gly Ser Arg Gly Ile Ile Ala Ala Leu Gly Pro Asp Gly  
 240 245 250  
 aag ccc tcc cgt atc gta gtt atc tac acg acg ggg agt cag gca act 1001  
 Lys Pro Ser Arg Ile Val Val Ile Tyr Thr Thr Gly Ser Gln Ala Thr  
 255 260 265  
 atg gat gaa cga aat aga cag atc gct gag ata ggt gcc tca ctg att 1049  
 Met Asp Glu Arg Asn Arg Gln Ile Ala Glu Ile Gly Ala Ser Leu Ile  
 270 275 280  
 aag cat tgg taactgtcag accaagttaa ctcatatata ctttagattg 1098  
 Lys His Trp  
 285  
 atttaaaact tcatttttaa tttaaaagga tctaggtgaa gatccttttt gataatctca 1158  
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tttgagagcct tttttttgga gatttttcaac gtg aaa aaa tta tta ttc gca att	2292
Met Lys Lys Leu Leu Phe Ala Ile	290
cct tta gtt gtt cct ttc tat tct cac agt gca cag gtc caa ctg cag	2340
Pro Leu Val Val Pro Phe Tyr Ser His Ser Ala Gln Val Gln Leu Gln	295 300 305 310
gtc gac ctc gag atc aaa cgt gga act gtg gct gca cca tct gtc ttc	2388
Val Asp Leu Glu Ile Lys Arg Gly Thr Val Ala Ala Pro Ser Val Phe	315 320 325
atc ttc ccg cca tct gat gag cag ttg aaa tct gga act gcc tct gtt	2436
Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val	330 335 340
gtg tgc ctg ctg aat aac ttc tat ccc aga gag gcc aaa gta cag tgg	2484
Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp	345 350 355
aag gtg gat aac gcc ctc caa tcg ggt aac tcc cag gag agt gtc aca	2532
Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr	360 365 370
gag cag gac agc aag gac agc acc tac agc ctc agc agc acc ctg acg	2580
Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr	375 380 385 390
ctg agc aaa gca gac tac gag aaa cac aaa gtc tac gcc tgc gaa gtc	2628
Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val	395 400 405
acc cat cag ggc ctg agt tca ccg gtg aca aag agc ttc aac agg gga	2676
Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly	410 415 420
gag tgt taataaggcg cgccaattct atttcaagga gacagtcata atg aaa tac	2731
Glu Cys Met Lys Tyr	425
cta ttg cct acg gca gcc gct gga ttg tta tta ctc gcg gcc cag ccg	2779
Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala Ala Gln Pro	430 435 440
gcc atg gcc gaa gtt caa ttg tta gag tct ggt ggc ggt ctt gtt cag	2827
Ala Met Ala Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln	445 450 455
cct ggt ggt tct tta cgt ctt tct tgc gct gct tcc gga gcttcagatc	2876
Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala S r Gly	460 465 470

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 Ser Arg

gac aac tct aag aat act ctc tac ttg cag atg aac agc tta agt ctg 3820  
 Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Ser Leu  
 475 480 485 490

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 Ser Ile Arg Ser Gly Gln His Ser Pro Asn  
 495 500

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 actggaaagg gctattgcct tttgaaatga accctaaggt gtataacccc cagaagctag 4170  
 cctgcggctt cggtcaccgt ctcaagc gcc tcc acc aag ggc cca tcg gtc ttc 4224  
 Ala Ser Thr Lys Gly Pro Ser Val Phe  
 505

ccc ctg gca ccc tcc tcc aag agc acc tct ggg ggc aca gcg gcc ctg 4272  
 Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu  
 510 515 520 525



ggc tgc ctg gtc aag gac tac ttc ccc gaa ccg gtg acg gtg tgc tgg	4320
Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp	
530 535 540	
aac tca ggc gcc ctg acc agc ggc gtc cac acc ttc ccg gct gtc cta	4368
Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu	
545 550 555	
cag tcc tca gga ctc tac tcc ctc agc agc gta gtg acc gtg ccc tcc	4416
Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser	
560 565 570	
agc agc ttg ggc acc cag acc tac atc tgc aac gtg aat cac aag ccc	4464
Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro	
575 580 585	
agc aac acc aag gtg gac aag aaa gtt gag ccc aaa tct tgt gcg gcc	4512
Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Ala Ala	
590 595 600 605	
gca cat cat cat cac cat cac ggg gcc gca gaa caa aaa ctc atc tca	4560
Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser	
610 615 620	
gaa gag gat ctg aat ggg gcc gca tag act gtt gaa agt tgt tta gca	4608
Glu Glu Asp Leu Asn Gly Ala Ala Thr Val Glu Ser Cys Leu Ala	
625 630 635	
aaa cct cat aca gaa aat tca ttt act aac gtc tgg aaa gac gac aaa	4656
Lys Pro His Thr Glu Asn Ser Phe Thr Asn Val Trp Lys Asp Asp Lys	
640 645 650	
act tta gat cgt tac gct aac tat gag ggc tgt ctg tgg aat gct aca	4704
Thr Leu Asp Arg Tyr Ala Asn Tyr Glu Gly Cys Leu Trp Asn Ala Thr	
655 660 665	
ggc gtt gtg gtt tgt act ggt gac gaa act cag tgt tac ggt aca tgg	4752
Gly Val Val Val Cys Thr Gly Asp Glu Thr Gln Cys Tyr Gly Thr Trp	
670 675 680	
gtt cct att ggg ctt gct atc cct gaa aat gag ggt ggt ggc tct gag	4800
Val Pro Ile Gly Leu Ala Ile Pro Glu Asn Glu Gly Gly Gly Ser Glu	
685 690 695 700	
ggt ggc ggt tct gag ggt ggc ggt tct gag ggt ggc ggt act aaa cct	4848
Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Thr Lys Pro	
705 710 715	
cct gag tac ggt gat aca cct att ccg ggc tat act tat atc aac cct	4896
Pro Glu Tyr Gly Asp Thr Pro Ile Pro Gly Tyr Thr Tyr Ile Asn Pro	
720 725 730	
ctc gac ggc act tat ccg cct ggt act gag caa aac ccc gct aat cct	4944
Leu Asp Gly Thr Tyr Pro Pro Gly Thr Glu Gln Asn Pro Ala Asn Pro	
735 740 745	
aat cct tct ctt gag gag tct cag cct ctt aat act ttc atg ttt cag	4992
Asn Pro Ser Leu Glu Glu Ser Gln Pro Leu Asn Thr Phe Met Phe Gln	

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act gtt act caa ggc act gac ccc gtt aaa act tat tac cag tac act Thr Val Thr Gln Gly Thr Asp Pro Val Lys Thr Tyr Tyr Gln Tyr Thr 785 790 795			5088
cct gta tca tca aaa gcc atg tat gac gct tac tgg aac ggt aaa ttc Pro Val Ser Ser Lys Ala Met Tyr Asp Ala Tyr Trp Asn Gly Lys Phe 800 805 810			5136
aga gac tgc gct ttc cat tct ggc ttt aat gag gat cca ttc gtt tgt Arg Asp Cys Ala Phe His Ser Gly Phe Asn Glu Asp Pro Phe Val Cys 815 820 825			5184
gaa tat caa ggc caa tcg tct gac ctg cct caa cct cct gtc aat gct Glu Tyr Gln Gly Gln Ser Ser Asp Leu Pro Gln Pro Pro Val Asn Ala 830 835 840			5232
ggc ggc ggc tct ggt ggt ggt tct ggt ggc ggc tct gag ggt ggc ggc Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Ser Gly Ser Glu Gly Gly Gly 845 850 855 860			5280
tct gag ggt ggc ggt tct gag ggt ggc ggc tct gag ggt ggc ggt tcc Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser 865 870 875			5328
ggt ggc ggc tcc ggt tcc ggt gat ttt gat tat gaa aaa atg gca aac Gly Gly Gly Ser Gly Ser Gly Asp Phe Asp Tyr Glu Lys Met Ala Asn 880 885 890			5376
gct aat aag ggg gct atg acc gaa aat gcc gat gaa aac gcg cta cag Ala Asn Lys Gly Ala Met Thr Glu Asn Ala Asp Glu Asn Ala Leu Gln 895 900 905			5424
tct gac gct aaa ggc aaa ctt gat tct gtc gct act gat tac ggt gct Ser Asp Ala Lys Gly Lys Leu Asp Ser Val Ala Thr Asp Tyr Gly Ala 910 915 920			5472
gct atc gat ggt ttc att ggt gac gtt tcc ggc ctt gct aat ggt aat Ala Ile Asp Gly Phe Ile Gly Asp Val Ser Gly Leu Ala Asn Gly Asn 925 930 935 940			5520
ggt gct act ggt gat ttt gct ggc tct aat tcc caa atg gct caa gtc Gly Ala Thr Gly Asp Phe Ala Gly Ser Asn Ser Gln Met Ala Gln Val 945 950 955			5568
ggt gac ggt gat aat tca cct tta atg aat aat ttc cgt caa tat tta Gly Asp Gly Asp Asn Ser Pro Leu Met Asn Asn Phe Arg Gln Tyr Leu 960 965 970			5616
cct tct ttg cct cag tcg gtt gaa tgt cgc cct tat gtc ttt ggc gct Pro Ser Leu Pro Gln Ser Val Glu Cys Arg Pro Tyr Val Phe Gly Ala 975 980 985			5664

ggt aaa cca tat gaa ttt tct att gat tgt gac aaa ata aac tta ttc 5712  
 Gly Lys Pro Tyr Glu Phe Ser Ile Asp Cys Asp Lys Ile Asn Leu Phe  
 990 995 1000

cgt ggt gtc ttt gcg ttt ctt tta tat gtt gcc acc ttt atg tat gta 5760  
 Arg Gly Val Phe Ala Phe Leu Leu Tyr Val Ala Thr Phe Met Tyr Val  
 1005 1010 1015 1020

ttt tcg acg ttt gct aac ata ctg cgt aat aag gag tct taataagaat 5809  
 Phe Ser Thr Phe Ala Asn Ile Leu Arg Asn Lys Glu Ser  
 1025 1030

tcactggccg tcgtttttaca acgtcgtgac tgggaaaacc ctggcggttac ccaacttaat 5869

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<210> 523

<211> 286

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Vector pCES5  
 protein sequence

<400> 523

Met Ser Ile Gln His Phe Arg Val Ala Leu Ile Pro Phe Phe Ala Ala  
 1 5 10 15

Phe Cys Leu Pro Val Phe Ala His Pro Glu Thr Leu Val Lys Val Lys  
 20 25 30

Asp Ala Glu Asp Gln Leu Gly Ala Arg Val Gly Tyr Ile Glu Leu Asp  
           35                                  40                                  45  
 Leu Asn Ser Gly Lys Ile Leu Glu Ser Phe Arg Pro Glu Glu Arg Phe  
           50                                  55                                  60  
 Pro Met Met Ser Thr Phe Lys Val Leu Leu Cys Gly Ala Val Leu Ser  
           65                                  70                                  75                                  80  
 Arg Ile Asp Ala Gly Gln Glu Gln Leu Gly Arg Arg Ile His Tyr Ser  
                                   85                                  90                                  95  
 Gln Asn Asp Leu Val Glu Tyr Ser Pro Val Thr Glu Lys His Leu Thr  
                                   100                                  105                                  110  
 Asp Gly Met Thr Val Arg Glu Leu Cys Ser Ala Ala Ile Thr Met Ser  
           115                                  120                                  125  
 Asp Asn Thr Ala Ala Asn Leu Leu Leu Thr Thr Ile Gly Gly Pro Lys  
           130                                  135                                  140  
 Glu Leu Thr Ala Phe Leu His Asn Met Gly Asp His Val Thr Arg Leu  
           145                                  150                                  155                                  160  
 Asp Arg Trp Glu Pro Glu Leu Asn Glu Ala Ile Pro Asn Asp Glu Arg  
                                   165                                  170                                  175  
 Asp Thr Thr Met Pro Val Ala Met Ala Thr Thr Leu Arg Lys Leu Leu  
                                   180                                  185                                  190  
 Thr Gly Glu Leu Leu Thr Leu Ala Ser Arg Gln Gln Leu Ile Asp Trp  
           195                                  200                                  205  
 Met Glu Ala Asp Lys Val Ala Gly Pro Leu Leu Arg Ser Ala Leu Pro  
           210                                  215                                  220  
 Ala Gly Trp Phe Ile Ala Asp Lys Ser Gly Ala Gly Glu Arg Gly Ser  
           225                                  230                                  235                                  240  
 Arg Gly Ile Ile Ala Ala Leu Gly Pro Asp Gly Lys Pro Ser Arg Ile  
                                   245                                  250                                  255  
 Val Val Ile Tyr Thr Thr Gly Ser Gln Ala Thr Met Asp Glu Arg Asn  
                                   260                                  265                                  270  
 Arg Gln Ile Ala Glu Ile Gly Ala Ser Leu Ile Lys His Trp  
           275                                  280                                  285

<210> 524

<211> 138

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Vector pCES5  
protein sequence

&lt;400&gt; 524

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser  
 1 5 10 15

His Ser Ala Gln Val Gln Leu Gln Val Asp Leu Glu Ile Lys Arg Gly  
 20 25 30

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln  
 35 40 45

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr  
 50 55 60

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser  
 65 70 75 80

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr  
 85 90 95

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys  
 100 105 110

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro  
 115 120 125

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys  
 130 135

&lt;210&gt; 525

&lt;211&gt; 48

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Vector pCES5  
protein sequence

&lt;400&gt; 525

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala  
 1 5 10 15

Ala Gln Pro Ala Met Ala Glu Val Gln Leu Leu Glu Ser Gly Gly Gly  
 20 25 30

Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly  
 35 40 45

&lt;210&gt; 526

&lt;211&gt; 28

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Vector pCES5

## protein sequence

&lt;400&gt; 526

Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu  
 1 5 10 15

Ser Leu Ser Ile Arg Ser Gly Gln His Ser Pro Asn  
 20 25

&lt;210&gt; 527

&lt;211&gt; 533

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Vector pCES5  
 protein sequence

&lt;400&gt; 527

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys  
 1 5 10 15

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr  
 20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
 35 40 45

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser  
 50 55 60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
 65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys  
 85 90 95

Lys Val Glu Pro Lys Ser Cys Ala Ala Ala His His His His His His  
 100 105 110

Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala  
 115 120 125

Ala Thr Val Glu Ser Cys Leu Ala Lys Pro His Thr Glu Asn Ser Phe  
 130 135 140

Thr Asn Val Trp Lys Asp Asp Lys Thr Leu Asp Arg Tyr Ala Asn Tyr  
 145 150 155 160

Glu Gly Cys Leu Trp Asn Ala Thr Gly Val Val Val Cys Thr Gly Asp  
 165 170 175

Glu Thr Gln Cys Tyr Gly Thr Trp Val Pro Ile Gly Leu Ala Ile Pro  
 180 185 190

Glu Asn Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly  
 195 200 205

Ser Glu Gly Gly Gly Thr Lys Pro Pro Glu Tyr Gly Asp Thr Pro Ile  
 210 215 220  
 Pro Gly Tyr Thr Tyr Ile Asn Pro Leu Asp Gly Thr Tyr Pro Pro Gly  
 225 230 235 240  
 Thr Glu Gln Asn Pro Ala Asn Pro Asn Pro Ser Leu Glu Glu Ser Gln  
 245 250 255  
 Pro Leu Asn Thr Phe Met Phe Gln Asn Asn Arg Phe Arg Asn Arg Gln  
 260 265 270  
 Gly Ala Leu Thr Val Tyr Thr Gly Thr Val Thr Gln Gly Thr Asp Pro  
 275 280 285  
 Val Lys Thr Tyr Tyr Gln Tyr Thr Pro Val Ser Ser Lys Ala Met Tyr  
 290 295 300  
 Asp Ala Tyr Trp Asn Gly Lys Phe Arg Asp Cys Ala Phe His Ser Gly  
 305 310 315 320  
 Phe Asn Glu Asp Pro Phe Val Cys Glu Tyr Gln Gly Gln Ser Ser Asp  
 325 330 335  
 Leu Pro Gln Pro Pro Val Asn Ala Gly Gly Gly Ser Gly Gly Gly Ser  
 340 345 350  
 Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly  
 355 360 365  
 Gly Gly Ser Glu Gly Gly Gly Ser Gly Gly Gly Ser Gly Ser Gly Asp  
 370 375 380  
 Phe Asp Tyr Glu Lys Met Ala Asn Ala Asn Lys Gly Ala Met Thr Glu  
 385 390 395 400  
 Asn Ala Asp Glu Asn Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp  
 405 410 415  
 Ser Val Ala Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp  
 420 425 430  
 Val Ser Gly Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly  
 435 440 445  
 Ser Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn Ser Pro Leu  
 450 455 460  
 Met Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu  
 465 470 475 480  
 Cys Arg Pro Tyr Val Phe Gly Ala Gly Lys Pro Tyr Glu Phe Ser Ile  
 485 490 495  
 Asp Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala Phe Leu Leu  
 500 505 510

Tyr Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala Asn Ile Leu  
 515 520 525

Arg Asn Lys Glu Ser  
 530

<210> 528  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 528  
 acctcactgg cttccggatt cactttctct

30

<210> 529  
 <211> 42  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 529  
 agaaacccac tccaaacctt taccaggagc ttggcgaacc ca

42

<210> 530  
 <211> 51  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 530  
 ggaaggcagt gatctagaga tagtgaagcg acctttaacg gagtcagcat a

51

<210> 531  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 531  
 ggaaggcagt gatctagaga tag

23



<210> 532  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 532  
gtgctgactc agccaccctc

20

<210> 533  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 533  
gccctgactc agcctgcctc

20

<210> 534  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 534  
gagctgactc aggaccctgc

20

<210> 535  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 535  
gagctgactc agccaccctc

20

<210> 536  
<211> 38  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 536

cctcgacagc gaagtcgaca gagcgtcttg actcagcc

38

<210> 537

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 537

cctcgacagc gaagtcgaca gagcgtcttg

30

<210> 538

<211> 38

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic  
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38

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<223> Description of Artificial Sequence: Synthetic  
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<210> 540

<211> 38

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38

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38

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<210> 550

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<210> 551

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<210> 552

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<212> DNA

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<223> Description of Artificial Sequence: Synthetic  
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<220>  
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<210> 558  
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<223> A, T, C, G, other or unknown

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<210> 572

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<210> 573

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11

<210> 574

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 cgttcgcaga attgggaatc aactgttata tggaatgaaa cttccagaca ccgtacttta 180

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Val Pro Phe Tyr Ser Gly Ala Ala Glu Ser His Leu Asp Gly Ala Ala
15 20 25
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Glu Thr Val Glu Ser Cys Leu Ala Lys Ser His Thr Glu Asn Ser Phe
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 Glu Thr Gln Cys Tyr Gly Thr Trp Val Pro Ile Gly Leu Ala Ile Pro  
 80 85 90

gaa aat gag ggt ggt ggc tct gag ggt ggc ggt tct gag ggt ggc ggt 1898  
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Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Ala Ala Ala His His  
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 cat cac cat cac ggg gcc gca gaa caa aaa ctc atc tca gaa gag gat 8966  
 His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp  
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 Leu Asn Gly Ala Ala Gln Ala Ser Ser Ala Ser Gly Asp Phe Asp Tyr  
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 Glu Lys Met Ala Asn Ala Asn Lys Gly Ala Met Thr Glu Asn Ala Asp  
 1150 1155 1160  
 gar aay gck ytr car wsy gay gcy aar ggy aar ytw gay wsy gtc gck 9110  
 Glu Asn Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser Val Ala  
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 1180 1185 1190 1195  
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 Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser Asn Ser  
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<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: CJRA05  
protein sequence

<400> 583

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Gly Ala Ala Glu Ser His Leu Asp Gly Ala Ala Glu Thr Val Glu Ser  
20 25 30

Cys Leu Ala Lys Ser His Thr Glu Asn Ser Phe Thr Asn Val Trp Lys  
35 40 45

Asp Asp Lys Thr Leu Asp Arg Tyr Ala Asn Tyr Glu Gly Cys Leu Trp  
50 55 60

Asn Ala Thr Gly Val Val Val Cys Thr Gly Asp Glu Thr Gln Cys Tyr  
65 70 75 80

Gly Thr Trp Val Pro Ile Gly Leu Ala Ile Pro Glu Asn Glu Gly Gly  
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Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly  
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Thr

<210> 584

<211> 152

<212> PRT

<213> Artificial Sequence



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protein sequence

&lt;400&gt; 584

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Lys Leu Asp Ser Val Ala Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe
          35           40           45
Ile Gly Asp Val Ser Gly Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp
          50           55           60
Phe Ala Gly Ser Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn
          65           70           75           80
Ser Pro Leu Met Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln
          85           90           95
Ser Val Glu Cys Arg Pro Phe Val Phe Gly Ala Gly Lys Pro Tyr Glu
          100          105          110
Phe Ser Ile Asp Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala
          115          120          125
Phe Leu Leu Tyr Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala
          130          135          140
Asn Ile Leu Arg Asn Lys Glu Ser
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&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

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peptide sequence

&lt;400&gt; 585

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Met Pro Val Leu Leu Gly Ile Pro Leu Leu Leu Arg Phe Leu Gly
 1           5           10           15

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&lt;210&gt; 586

&lt;211&gt; 348

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: CJRA05

## protein sequence

&lt;400&gt; 586

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Val Ser Val Gly Lys Ile Gln Asp Lys Ile Val Ala Gly Cys Lys Ile
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Ala Thr Asn Leu Asp Leu Arg Leu Gln Asn Leu Pro Gln Val Gly Arg
      35           40           45

Phe Ala Lys Thr Pro Arg Val Leu Arg Ile Pro Asp Lys Pro Ser Ile
      50           55           60

Ser Asp Leu Leu Ala Ile Gly Arg Gly Asn Asp Ser Tyr Asp Glu Asn
      65           70           75           80

Lys Asn Gly Leu Leu Val Leu Asp Glu Cys Gly Thr Trp Phe Asn Thr
      85           90           95

Arg Ser Trp Asn Asp Lys Glu Arg Gln Pro Ile Ile Asp Trp Phe Leu
      100          105          110

His Ala Arg Lys Leu Gly Trp Asp Ile Ile Phe Leu Val Gln Asp Leu
      115          120          125

Ser Ile Val Asp Lys Gln Ala Arg Ser Ala Leu Ala Glu His Val Val
      130          135          140

Tyr Cys Arg Arg Leu Asp Arg Ile Thr Leu Pro Phe Val Gly Thr Leu
      145          150          155          160

Tyr Ser Leu Ile Thr Gly Ser Lys Met Pro Leu Pro Lys Leu His Val
      165          170          175

Gly Val Val Lys Tyr Gly Asp Ser Gln Leu Ser Pro Thr Val Glu Arg
      180          185          190

Trp Leu Tyr Thr Gly Lys Asn Leu Tyr Asn Ala Tyr Asp Thr Lys Gln
      195          200          205

Ala Phe Ser Ser Asn Tyr Asp Ser Gly Val Tyr Ser Tyr Leu Thr Pro
      210          215          220

Tyr Leu Ser His Gly Arg Tyr Phe Lys Pro Leu Asn Leu Gly Gln Lys
      225          230          235          240

Met Lys Leu Thr Lys Ile Tyr Leu Lys Lys Phe Ser Arg Val Leu Cys
      245          250          255

Leu Ala Ile Gly Phe Ala Ser Ala Phe Thr Tyr Ser Tyr Ile Thr Gln
      260          265          270

Pro Lys Pro Glu Val Lys Lys Val Val Ser Gln Thr Tyr Asp Phe Asp
      275          280          285

Lys Phe Thr Ile Asp Ser Ser Gln Arg Leu Asn Leu Ser Tyr Arg Tyr

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Val	Phe	Lys	Asp	Ser	Lys	Gly	Lys	Leu	Ile	Asn	Ser	Asp	Asp	Leu	Gln	
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Lys	Gln	Gly	Tyr	Ser	Leu	Thr	Tyr	Ile	Asp	Leu	Cys	Thr	Val	Ser	Ile	
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<210> 587
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<220>  
<223> Description of Artificial Sequence: CJRA05  
protein sequence

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			20					25					30				
Leu	Ser	Pro	Gly	Glu	Arg	Ala	Thr	Leu	Ser	Cys	Arg	Ala	Ser	Gln	Gly		
		35					40					45					
Val	Ser	Ser	Tyr	Leu	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Ala	Pro		
	50					55					60						
Arg	Leu	Leu	Ile	Tyr	Asp	Ala	Ser	Asn	Arg	Ala	Thr	Gly	Ile	Pro	Ala		
65					70					75					80		
Arg	Phe	Ser	Gly	Ser	Gly	Pro	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser		
				85					90					95			
Ser	Leu	Glu	Pro	Glu	Asp	Phe	Ala	Val	Tyr	Tyr	Cys	Gln	Gln	Arg	Asn		
			100					105					110				
Trp	His	Pro	Trp	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys	Arg		
		115					120					125					
Thr	Val	Ala	Ala	Pro	Ser	Val	Phe	Ile	Phe	Pro	Pro	Ser	Asp	Glu	Gln		
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Leu	Lys	Ser	Gly	Thr	Ala	Ser	Val	Val	Cys	Leu	Leu	Asn	Asn	Phe	Tyr		
145					150					155					160		
Pro	Arg	Glu	Ala	Lys	Val	Gln	Trp	Lys	Val	Asp	Asn	Ala	Leu	Gln	Ser		
				165					170					175			
Gly	Asn	Ser	Gln	Glu	Ser	Val	Thr	Glu	Arg	Asp	Ser	Lys	Asp	Ser	Thr		
			180					185					190				

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys  
 195 200 205

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro  
 210 215 220

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys  
 225 230

<210> 588

<211> 431

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: CJRA05  
 protein sequence

<400> 588

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala  
 1 5 10 15

Ala Gln Pro Ala Met Ala Glu Val Gln Leu Leu Glu Ser Gly Gly Gly  
 20 25 30

Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly  
 35 40 45

Phe Thr Phe Ser Thr Tyr Glu Met Arg Trp Val Arg Gln Ala Pro Gly  
 50 55 60

Lys Gly Leu Glu Trp Val Ser Tyr Ile Ala Pro Ser Gly Gly Asp Thr  
 65 70 75 80

Ala Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn  
 85 90 95

Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp  
 100 105 110

Thr Ala Val Tyr Tyr Cys Ala Arg Arg Leu Asp Gly Tyr Ile Ser Tyr  
 115 120 125

Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser  
 130 135 140

Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser  
 145 150 155 160

Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp  
 165 170 175

Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr  
 180 185 190

Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr  
 195 200 205

Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln  
 210 215 220  
 Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp  
 225 230 235 240  
 Lys Lys Val Glu Pro Lys Ser Cys Ala Ala Ala His His His His His  
 245 250 255  
 His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly  
 260 265 270  
 Ala Ala Gln Ala Ser Ser Ala Ser Gly Asp Phe Asp Tyr Glu Lys Met  
 275 280 285  
 Ala Asn Ala Asn Lys Gly Ala Met Thr Glu Asn Ala Asp Glu Asn Ala  
 290 295 300  
 Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser Val Ala Thr Asp Tyr  
 305 310 315 320  
 Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp Val Ser Gly Leu Ala Asn  
 325 330 335  
 Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser Asn Ser Gln Met Ala  
 340 345 350  
 Gln, Val Gly Asp Gly Asp Asn Ser Pro Leu Met Asn Asn Phe Arg Gln  
 355 360 365  
 Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu Cys Arg Pro Phe Val Phe  
 370 375 380  
 Ser Ala Gly Lys Pro Tyr Glu Phe Ser Ile Asp Cys Asp Lys Ile Asn  
 385 390 395 400  
 Leu Phe Arg Gly Val Phe Ala Phe Leu Leu Tyr Val Ala Thr Phe Met  
 405 410 415  
 Tyr Val Phe Ser Thr Phe Ala Asn Ile Leu Arg Asn Lys Glu Ser  
 420 425 430

<210> 589

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Illustrative peptide

<400> 589

Glu Gly Gly Gly Ser

1

5

<210> 590  
 <211> 1275  
 <212> DNA  
 <213> Unknown Organism

<220>  
 <221> CDS  
 <222> (1)..(1272)

<220>  
 <223> Description of Unknown Organism: M13 nucleotide  
 sequence

<400> 590  
 gtg aaa aaa tta tta ttc gca att cct tta gtt gtt cct ttc tat tct 48  
 Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser  
 1 5 10 15  
 cac tcc gct gaa act gtt gaa agt tgt tta gca aaa ccc cat aca gaa 96  
 His Ser Ala Glu Thr Val Glu Ser Cys Leu Ala Lys Pro His Thr Glu  
 20 25 30  
 aat tca ttt act aac gtc tgg aaa gac gac aaa act tta gat cgt tac 144  
 Asn Ser Phe Thr Asn Val Trp Lys Asp Asp Lys Thr Leu Asp Arg Tyr  
 35 40 45  
 gct aac tat gag ggt tgt ctg tgg aat gct aca ggc gtt gta gtt tgt 192  
 Ala Asn Tyr Glu Gly Cys Leu Trp Asn Ala Thr Gly Val Val Val Cys  
 50 55 60  
 act ggt gac gaa act cag tgt tac ggt aca tgg gtt cct att ggg ctt 240  
 Thr Gly Asp Glu Thr Gln Cys Tyr Gly Thr Trp Val Pro Ile Gly Leu  
 65 70 75 80  
 gct atc cct gaa aat gag ggt ggt ggc tct gag ggt ggc ggt tct gag 288  
 Ala Ile Pro Glu Asn Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu  
 85 90 95  
 ggt ggc ggt tct gag ggt ggc ggt act aaa cct cct gag tac ggt gat 336  
 Gly Gly Gly Ser Glu Gly Gly Gly Thr Lys Pro Pro Glu Tyr Gly Asp  
 100 105 110  
 aca cct att ccg ggc tat act tat atc aac cct ctc gac ggc act tat 384  
 Thr Pro Ile Pro Gly Tyr Thr Tyr Ile Asn Pro Leu Asp Gly Thr Tyr  
 115 120 125  
 ccg cct ggt act gag caa aac ccc gct aat cct aat cct tct ctt gag 432  
 Pro Pro Gly Thr Glu Gln Asn Pro Ala Asn Pro Asn Pro Ser Leu Glu  
 130 135 140  
 gag tct cag cct ctt aat act ttc atg ttt cag aat aat agg ttc cga 480  
 Glu Ser Gln Pro Leu Asn Thr Phe Met Phe Gln Asn Asn Arg Phe Arg  
 145 150 155 160  
 aat agg cag ggg gca tta act gtt tat acg ggc act gtt act caa ggc 528  
 Asn Arg Gln Gly Ala Leu Thr Val Tyr Thr Gly Thr Val Thr Gln Gly  
 165 170 175

act gac ccc gtt aaa act tat tac cag tac act cct gta tca tca aaa	576
Thr Asp Pro Val Lys Thr Tyr Tyr Gln Tyr Thr Pro Val Ser Ser Lys	
180 185 190	
gcc atg tat gac gct tac tgg aac ggt aaa ttc aga gac tgc gct ttc	624
Ala Met Tyr Asp Ala Tyr Trp Asn Gly Lys Phe Arg Asp Cys Ala Phe	
195 200 205	
cat tct ggc ttt aat gag gat cca ttc gtt tgt gaa tat caa ggc caa	672
His Ser Gly Phe Asn Glu Asp Pro Phe Val Cys Glu Tyr Gln Gly Gln	
210 215 220	
tcg tct gac ctg cct caa cct cct gtc aat gct ggc ggc ggc tct ggt	720
Ser Ser Asp Leu Pro Gln Pro Pro Val Asn Ala Gly Gly Gly Ser Gly	
225 230 235 240	
ggg ggt tct ggt ggc ggc tct gag ggt ggt ggc tct gag ggt ggc ggt	768
Gly Gly Ser Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly	
245 250 255	
tct gag ggt ggc ggc tct gag gga ggc ggt tcc ggt ggt ggc tct ggt	816
Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Gly Gly Gly Ser Gly	
260 265 270	
tcc ggt gat ttt gat tat gaa aag atg gca aac gct aat aag ggg gct	864
Ser Gly Asp Phe Asp Tyr Glu Lys Met Ala Asn Ala Asn Lys Gly Ala	
275 280 285	
atg acc gaa aat gcc gat gaa aac gcg cta cag tct gac gct aaa ggc	912
Met Thr Glu Asn Ala Asp Glu Asn Ala Leu Gln Ser Asp Ala Lys Gly	
290 295 300	
aaa ctt gat tct gtc gct act gat tac ggt gct gct atc gat ggt ttc	960
Lys Leu Asp Ser Val Ala Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe	
305 310 315 320	
att ggt gac gtt tcc ggc ctt gct aat ggt aat ggt gct act ggt gat	1008
Ile Gly Asp Val Ser Gly Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp	
325 330 335	
ttt gct ggc tct aat tcc caa atg gct caa gtc ggt gac ggt gat aat	1056
Phe Ala Gly Ser Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn	
340 345 350	
tca cct tta atg aat aat ttc cgt caa tat tta cct tcc ctc cct caa	1104
Ser Pro Leu Met Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln	
355 360 365	
tcg gtt gaa tgt cgc cct ttt gtc ttt agc gct ggt aaa cca tat gaa	1152
Ser Val Glu Cys Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu	
370 375 380	
ttt tct att gat tgt gac aaa ata aac tta ttc cgt ggt gtc ttt gcg	1200
Phe Ser Ile Asp Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala	
385 390 395 400	
ttt ctt tta tat gtt gcc acc ttt atg tat gta ttt tct acg ttt gct	1248
Phe Leu Leu Tyr Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala	

410

415.

1275

<213> Unknown Organism

<223> Description of Unknown Organism: M13 protein  
sequence

His Ser Gly Phe Asn Glu Asp Pro Phe Val Cys Glu Tyr Gln Gly Gln  
210 215 220



Ser Ser Asp Leu Pro Gln Pro Pro Val Asn Ala Gly Gly Gly Ser Gly  
 225 230 235 240  
 Gly Gly Ser Gly Gly Gly Ser Glu Gly Gly Ser Glu Gly Gly Gly  
 245 250 255  
 Ser Glu Gly Gly Gly Ser Glu Gly Gly Ser Gly Gly Gly Ser Gly  
 260 265 270  
 Ser Gly Asp Phe Asp Tyr Glu Lys Met Ala Asn Ala Asn Lys Gly Ala  
 275 280 285  
 Met Thr Glu Asn Ala Asp Glu Asn Ala Leu Gln Ser Asp Ala Lys Gly  
 290 295 300  
 Lys Leu Asp Ser Val Ala Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe  
 305 310 315 320  
 Ile Gly Asp Val Ser Gly Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp  
 325 330 335  
 Phe Ala Gly Ser Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn  
 340 345 350  
 Ser Pro Leu Met Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln  
 355 360 365  
 Ser Val Glu Cys Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu  
 370 375 380  
 Phe Ser Ile Asp Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala  
 385 390 395 400  
 Phe Leu Leu Tyr Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala  
 405 410 415  
 Asn Ile Leu Arg Asn Lys Glu Ser  
 420

<210> 592

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 592

caacgatgat cgtatggcgc atgctgccga gacag

35

<210> 593

<211> 1355

<212> DNA

<213> Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: M13-III  
nucleotide sequence

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(1305)

&lt;400&gt; 593

gcg gcc gca cat cat cat cac cat cac ggg gcc gca gaa caa aaa ctc	48
Ala Ala Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu	
1 5 10 15	
atc tca gaa gag gat ctg aat ggg gcc gca tag gct agc gat atc aac	96
Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala Ala Ser Asp Ile Asn	
20 25 30	
gat gat cgt atg gct tct act gcy gar acw gty gaa wsy tgy ytr gcm	144
Asp Asp Arg Met Ala Ser Thr Ala Glu Thr Val Glu Ser Cys Leu Ala	
35 40 45	
aar ccy cay acw gar aat wsw tty acw aay gts tgg aar gay gay aar	192
Lys Pro His Thr Glu Asn Ser Phe Thr Asn Val Trp Lys Asp Asp Lys	
50 55 60	
acy ytw gat cgw tay gcy aay tay gar ggy tgy ytr tgg aat gcy acm	240
Thr Leu Asp Arg Tyr Ala Asn Tyr Glu Gly Cys Leu Trp Asn Ala Thr	
65 70 75	
ggc gty gtw gty tgy ack ggy gay gar acw car tgy tay ggy acr tgg	288
Gly Val Val Val Cys Thr Gly Asp Glu Thr Gln Cys Tyr Gly Thr Trp	
80 85 90 95	
gtk cck atw ggs ytw gcy atm cck gar aay gar ggy ggy ggy wsy gar	336
Val Pro Ile Gly Leu Ala Ile Pro Glu Asn Glu Gly Gly Gly Ser Glu	
100 105 110	
ggy ggy ggy wsy gar ggy ggy ggw tcy gar ggw ggy ggw acy aar cck	384
Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Thr Lys Pro	
115 120 125	
cck gar tay ggy gay acw cck atw cck ggy tay acy tay aty aay cck	432
Pro Glu Tyr Gly Asp Thr Pro Ile Pro Gly Tyr Thr Tyr Ile Asn Pro	
130 135 140	
ytm gay ggm acy tay cck cck ggy acy gar car aay ccy gcy aay cck	480
Leu Asp Gly Thr Tyr Pro Pro Gly Thr Glu Gln Asn Pro Ala Asn Pro	
145 150 155	
aay ccw wsy ytw gar gar wsy car cck ytw aay acy tty atg tty car	528
Asn Pro Ser Leu Glu Glu Ser Gln Pro Leu Asn Thr Phe Met Phe Gln	
160 165 170 175	
aay aay mgk tty mgr aay mgk car ggy gcw ytw acy gtk tay ack ggm	576
Asn Asn Arg Phe Arg Asn Arg Gln Gly Ala Leu Thr Val Tyr Thr Gly	
180 185 190	

acy gty acy car ggy acy gay ccy gty aar acy tay tay car tay acy	624
Thr Val Thr Gln Gly Thr Asp Pro Val Lys Thr Tyr Tyr Gln Tyr Thr	
195 200 205	
cck gtm tcr wsw aar gcy atg tay gay gcy tay tgg aay ggy aar tty	672
Pro Val Ser Ser Lys Ala Met Tyr Asp Ala Tyr Trp Asn Gly Lys Phe	
210 215 220	
mgw gay tgy gcy tty cay wsy ggy tty aay gar gay ccw tty gty tgy	720
Arg Asp Cys Ala Phe His Ser Gly Phe Asn Glu Asp Pro Phe Val Cys	
225 230 235	
gar tay car ggy car wsk wsy gay ytr cck car ccw cck gty aay gck	768
Glu Tyr Gln Gly Gln Ser Ser Asp Leu Pro Gln Pro Pro Val Asn Ala	
240 245 250 255	
ggy ggy ggy wsy ggy ggw ggy wsy ggy ggy ggy wsy gar ggy ggw ggy	816
Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser Glu Gly Gly Gly	
260 265 270	
wsy gar ggw ggy ggy wsy ggr ggy ggy wsy ggy wsy ggy gay tty gay	864
Ser Glu Gly Gly Gly Ser Gly Gly Gly Ser Gly Ser Gly Asp Phe Asp	
275 280 285	
tay gar aar atg gcw aay gcy aay aar ggs gcy atg acy gar aay gcy	912
Tyr Glu Lys Met Ala Asn Ala Asn Lys Gly Ala Met Thr Glu Asn Ala	
290 295 300	
gay gar aay gcr ctr car wst gay gcy aar ggy aar ytw gay wsy gtc	960
Asp Glu Asn Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser Val	
305 310 315	
gcy acw gay tay ggt gct gcy atc gay ggy tty aty ggy gay gty wsy	1008
Ala Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp Val Ser	
320 325 330 335	
ggy ctk gct aay ggy aay ggw gcy acy ggw gay tty gcw ggy tck aat	1056
Gly Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser Asn	
340 345 350	
tcy car atg gcy car gty ggw gay gck gay aay wsw cck ytw atg aay	1104
Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn Ser Pro Leu Met Asn	
355 360 365	
aay tty mgw car tay ytw cck tcy cty cck car wsk gty gar tgy cgy	1152
Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu Cys Arg	
370 375 380	
ccw tty gty tty wsy gcy ggy aar ccw tay gar tty wsy aty gay tgy	1200
Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe Ser Ile Asp Cys	
385 390 395	
gay aar atm aay ytw ttc cgy ggy gty tty gck tty ytk yta tay gty	1248
Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala Phe Leu Leu Tyr Val	
400 405 410 415	
gcy acy tty atg tay gtw tty wsy ack tty gcy aay atw ytr cgy aay	1296
Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala Asn Ile Leu Arg Asn	

420

425

430

aar gar wsy tagtgatctc ctaggaagcc cgcctaataga gcgggctttt  
Lys Glu Ser

1345

tttttctggt

1355

&lt;210&gt; 594

&lt;211&gt; 434

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: M13-III  
protein sequence

&lt;400&gt; 594

Ala Ala Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu  
1 5 10 15

Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala Ala Ser Asp Ile Asn Asp  
20 25 30

Asp Arg Met Ala Ser Thr Ala Glu Thr Val Glu Ser Cys Leu Ala Lys  
35 40 45

Pro His Thr Glu Asn Ser Phe Thr Asn Val Trp Lys Asp Asp Lys Thr  
50 55 60

Leu Asp Arg Tyr Ala Asn Tyr Glu Gly Cys Leu Trp Asn Ala Thr Gly  
65 70 75 80

Val Val Val Cys Thr Gly Asp Glu Thr Gln Cys Tyr Gly Thr Trp Val  
85 90 95

Pro Ile Gly Leu Ala Ile Pro Glu Asn Glu Gly Gly Gly Ser Glu Gly  
100 105 110

Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Thr Lys Pro Pro  
115 120 125

Glu Tyr Gly Asp Thr Pro Ile Pro Gly Tyr Thr Tyr Ile Asn Pro Leu  
130 135 140

Asp Gly Thr Tyr Pro Pro Gly Thr Glu Gln Asn Pro Ala Asn Pro Asn  
145 150 155 160

Pro Ser Leu Glu Glu Ser Gln Pro Leu Asn Thr Phe Met Phe Gln Asn  
165 170 175

Asn Arg Phe Arg Asn Arg Gln Gly Ala Leu Thr Val Tyr Thr Gly Thr  
180 185 190

Val Thr Gln Gly Thr Asp Pro Val Lys Thr Tyr Tyr Gln Tyr Thr Pro  
195 200 205

185

Val Ser Ser Lys Ala Met Tyr Asp Ala Tyr Trp Asn Gly Lys Phe Arg  
 210 215 220

Asp Cys Ala Phe His Ser Gly Phe Asn Glu Asp Pro Phe Val Cys Glu  
 225 230 235 240

Tyr Gln Gly Gln Ser Ser Asp Leu Pro Gln Pro Pro Val Asn Ala Gly  
 245 250 255

Gly Gly Ser Gly Gly Gly Ser Gly Gly Ser Glu Gly Gly Gly Ser  
 260 265 270

Glu Gly Gly Gly Ser Gly Gly Gly Ser Gly Ser Gly Asp Phe Asp Tyr  
 275 280 285

Glu Lys Met Ala Asn Ala Asn Lys Gly Ala Met Thr Glu Asn Ala Asp  
 290 295 300

Glu Asn Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser Val Ala  
 305 310 315 320

Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp Val Ser Gly  
 325 330 335

Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser Asn Ser  
 340 345 350

Gln Met Ala Gln Val Gly Asp Gly Asp Asn Ser Pro Leu Met Asn Asn  
 355 360 365

Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu Cys Arg Pro  
 370 375 380

Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe Ser Ile Asp Cys Asp  
 385 390 395 400

Lys Ile Asn Leu Phe Arg Gly Val Phe Ala Phe Leu Leu Tyr Val Ala  
 405 410 415

Thr Phe Met Tyr Val Phe Ser Thr Phe Ala Asn Ile Leu Arg Asn Lys  
 420 425 430

Glu Ser

<210> 595

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 595

cgttgatatc gctagcctat gc

<210> 596  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 596  
gataggctta gctagcccg agaacgaagg

30

<210> 597  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 597  
ctttcacagc ggtttcgcta gcgacccttt tgtctgc

37

<210> 598  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 598  
ctttcacagc ggtttcgcta gcgacccttt tgtcagcgag taccagggtc

50

<210> 599  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 599  
gactgtctcg gcagcatgcg ccatacgatc atcggtg

37

<210> 600  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>

<221> CDS

<222> (2)..(25)

<400> 600

c aac gat gat cgt atg gcg cat gct gccgagacag tc  
Asn Asp Asp Arg Met Ala His Ala  
1 5

37

<210> 601

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 601

Asn Asp Asp Arg Met Ala His Ala  
1 5

<210> 602

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 602

ctttcacagc ggtttgcattg cagacccttt tgtctgc

37

<210> 603

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 603

ctttcacagc ggtttgcattg cagacccttt tgtcagcgag taccagggtc

50

<210> 604

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Illustrative peptide

<400> 604

Tyr Ala Asp Ser Val Lys Gly  
1 5

<210> 605

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 605

cctcgacagc gaagtgcaca g

21

<210> 606

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 606

ggctgagtca agacgctctg tgcacttcgc tgtcgagg

38

<210> 607

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Illustrative peptide

<400> 607

Gln Ser Ala Leu Thr Gln Pro  
1 5

<210> 608

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 608

cctctgtcac agtgacacaag ac

22



<210> 609  
 <211> 42  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 609  
 cctctgtcac agtgcaaacg acatccagat gaccagctt cc

42

<210> 610  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 610  
 gggaggatgg agactgggtc gtctggatgt cttgtgcact gtagacagagg

50

<210> 611  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Illustrative  
 peptide

<400> 611  
 Gln Asp Ile Gln Met Thr Gln Ser Pro Ser Ser  
 1 5 10

<210> 612  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Primer

<400> 612  
 gactgggtgt agtgatctag

20

<210> 613  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<400> 613  
 ggtgtagtga tcttctagtg acaactct

28

<210> 614  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 614  
 Val Ser Ser Arg Asp Asn  
 1 5

<210> 615  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide

<220>  
 <221> CDS  
 <222> (1)..(15)

<400> 615  
 tac tat tgt gcg aaa  
 Tyr Tyr Cys Ala Lys  
 1 5

15

<210> 616  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 616  
 Tyr Tyr Cys Ala Lys  
 1 5

<210> 617  
 <211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 617

ggtgccgata ggcttgcacg caccggagaa cgaagg

36

<210> 618

<211> 95

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 618

cgcttcacta agtctagaga caactctaag aatactctct acttgcagat gaacagctta 60  
agggctgagg acactgcagt ctactattgt acgag 95

<210> 619

<211> 10

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>

<221> modified\_base

<222> (4)..(7)

<223> A, T, C, G, other or unknown

<400> 619

gatnnnnatc

10

<210> 620

<211> 10

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: MALIA3-derived  
peptide

<400> 620

Met Lys Leu Leu Asn Val Ile Asn Phe Val  
1 5 10

<210> 621

<211> 29  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: CJRA05-derived peptide

<400> 621  
 Met Ser Val Leu Val Tyr Ser Phe Ala Ser Phe Val Leu Gly Trp Cys  
           1                  5                  10                  15

Leu Arg Ser Gly Ile Thr Tyr Phe Thr Arg Leu Met Glu  
                   20                  25

<210> 622  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Illustrative nucleotide sequence

<400> 622  
 tttttttttt ttttt

15

<210> 623  
 <211> 87  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism: MALIA3-derived peptide

<400> 623  
 Met Ile Lys Val Glu Ile Lys Pro Ser Gln Ala Gln Phe Thr Thr Arg  
           1                  5                  10                  15

Ser Gly Val Ser Arg Gln Gly Lys Pro Tyr Ser Leu Asn Glu Gln Leu  
                   20                  25                  30

Cys Tyr Val Asp Leu Gly Asn Glu Tyr Pro Val Leu Val Lys Ile Thr  
           35                  40                  45

Leu Asp Glu Gly Gln Pro Ala Tyr Ala Pro Gly Leu Tyr Thr Val His  
           50                  55                  60

Leu Ser Ser Phe Lys Val Gly Gln Phe Gly Ser Leu Met Ile Asp Arg  
           65                  70                  75                  80

Leu Arg Leu Val Pro Ala Lys  
                   85

<210> 624  
 <211> 29  
 <212> PRT  
 <213> Unknown Organism

<220>

<223> Description of Unknown Organism: MALIA3-derived peptide

<400> 624

Met Ser Val Leu Val Tyr Ser Phe Ala Ser Phe Val Leu Gly Trp Cys  
 1 5 10 15  
 Leu Arg Ser Gly Ile Thr Tyr Phe Thr Arg Leu Met Glu  
 20 25

<210> 625  
 <211> 10  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide

<220>

<221> modified\_base

<222> (7)..(10)

<223> A, T, C, G, other or unknown

<400> 625  
 ctcttcnnnn

10

<210> 626  
 <211> 87  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: CJRA05-derived peptide

<400> 626

Met Ile Lys Val Glu Ile Lys Pro Ser Gln Ala Gln Phe Thr Thr Arg  
 1 5 10 15  
 Ser Gly Val Ser Arg Gln Gly Lys Pro Tyr Ser Leu Asn Glu Gln Leu  
 20 25 30  
 Cys Tyr Val Asp Leu Gly Asn Glu Tyr Pro Val Leu Val Lys Ile Thr  
 35 40 45  
 Leu Asp Glu Gly Gln Pro Ala Tyr Ala Pro Gly Leu Tyr Thr Val His  
 50 55 60  
 Leu Ser Ser Phe Lys Val Gly Gln Phe Gly Ser Leu Met Ile Asp Arg

65

70

75

80

Leu Arg Leu Val Pro Ala Lys  
85

&lt;210&gt; 627

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: CJRA05-derived  
peptide

&lt;400&gt; 627

Met Lys Leu Leu Asn Val Ile Asn Phe Val  
1 5 10

&lt;210&gt; 628

&lt;211&gt; 19

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

&lt;400&gt; 628

gacccagtct ccatacctcc

19

&lt;210&gt; 629

&lt;211&gt; 19

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

&lt;400&gt; 629

gactcagtct ccaactctcc

19

&lt;210&gt; 630

&lt;211&gt; 19

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

&lt;400&gt; 630

gacgcagtct ccaggcacc

19

<210> 631  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 631  
gacgcagtct ccagccacc

19

<210> 632  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 632  
gtctcctgga cagtcgac

19

<210> 633  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 633  
ggccttgga cagacagtc

19

<210> 634  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 634  
gtctcctgga cagtcagtc

19

<210> 635  
<211> 19  
<212> DNA  
<213> Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

&lt;400&gt; 635

ggccccaggg cagagggtc